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TOBACCO:

ITS

HISTORY, NATURE, AND EFFECTS

ON THE

BODY AND MIND.

WITH THE OPINIONS OF

REV. DR. NOTT, L. N. FOWLER, REV. HENRY WARD BEECHER, HON. HORACE
GREELEY, DR. JENNINGS, O. S. FOWLER, DR. R. T. TRALL, AND OTHERS.

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"In no one view is it possible to contemplate the creature man, in a more absurd and ridiculous light, than in his attachment to tobacco."—Dr. RUSS.

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P R E F A C E.

CONCERNING the expensiveness of tobacco, the Earl of Stanhope is said to have made the following calculation: Every professed, inveterate, and incurable snuff-taker, at a moderate computation, takes one pinch every ten minutes. Every pinch, with the agreeable ceremony of blowing and wiping the nose, and other incidental circumstances, consumes a minute and a half. One minute and a half out of every ten, allowing sixteen hours to a snuff-taker's day (and he always begins early and keeps it up late), amounts to two hours and twenty-four minutes out of every day, or one day out of ten. One day out of every ten amounts to thirty-six and a half days in a year. Hence, if we suppose the practice of forty years' standing, two entire years of the snuff-taker's life will be dedicated to tickling his nose, and two more to blowing it. The expense of snuff, boxes, and extra handkerchiefs is another consideration, showing as great an encroachment on his means as his time. The time and money thus lost to society, if properly applied, would furnish a fund sufficient to defray the national debt.

Some one has estimated the expensiveness of tobacco in this wise: Suppose a tobacco-chewer is addicted to the habit of chewing tobacco fifty years of his life, and each day of that time he consumes two inches of solid plug, which amounts to six thousand and seventy-five feet, making nearly one mile and a quarter in length of solid tobacco, half an inch thick and two inches broad. What would a beginner think if he had the whole amount stretched out before him, and he were told that to chew it up would be one of the exercises of his life, and also that it would tax his income to the amount of more than two thousand dollars? Query: Would he undertake it all?

In the city of New York there are about four hundred thousand inhabitants. About one half of the population is males. Of these we will suppose that one fourth of the number smoke cigars. On an average we will suppose these smokers to consume three cigars each, or, for example, ten cents' worth per day. This amounts, then, to no less than *five thousand dollars' worth of cigars* used in the city of New York in a single day! We will suppose that there is also about as much more used in pipes, by chewing and by snuffing. There would then be consumed in the city of New York *one million eight hundred and twenty-five thousand dollars' worth of tobacco in a single year!*

Let us make an estimate for a poor man. Here are multitudes of such, who have hard work, year by year, to obtain the bread they eat. Almost all of these men are inveterate chewers of tobacco. We will suppose they use the cheapest and most miserable kinds of the weed. At a low estimate each man uses five dollars' worth per year, which is only a little over a single cent's worth per day. This, in the space of forty years, when reckoned, principal and interest, would amount to a sum that would be very convenient to a poor old man when his hairs have grown gray.

The expensiveness of tobacco, then, is a very important consideration—important to the poor man, the rich man, the philanthropist, and the Christian. But there is yet a far more important consideration—I mean that which relates to health. If a man has once lost this best of all earthly blessings, what would he not give could it be again restored to him? All the gold and silver and precious metals the world has ever produced, or can ever produce, bear no comparison to the value of health.

The tobacco habit is every where increasing in public favor. It is hardly *genteel* not to be able to smoke. Looking at the habits of those about us, we may well regard them as addressing the “**GREAT PLANT :**”

‘Scent to match thy rich perfume,
Chymic art did ne’er presume,
Through her quaint, alembic strain,
None so sovereign to the brain.
Nature, that did in thee excel,
Framed no second smell.

Roses, violets, but toys
 For the smaller sort of boys,
 Or for greener damsels meant;
 Thou art the only manly scent."

We Americans are in some respects a peculiar people. We cannot be said to be miserly, yet we outdo the nations in money-making and general thrift. We go faster in our steamboats, build better ships, do more hard work, eat more food, and in a shorter time, than any nation on the face of the globe. So, too, in other things. We use more tea and coffee, drink more spirits, and become greater drunkards. So also we use more tobacco. But we cannot be at the trouble of smoking when we lie down, when we rise up, and through the whole day, as the Germans do. Nor can we be satisfied in taking up so much of our time as the French and English in snuffing. Two and a half hours' time out of each twenty-four, in snuffing, sneezing, and blowing one's nose, does not accord with the American notions of industry. The American must do two things at a time. He can saw wood, or plow, or hoe corn, at the same time while he is chewing a good "cud" of tobacco. He can, if need be, plead before a jury, or preach a sermon, while at the same time he holds the precious bolus in one side of his mouth. Besides, by the habit of chewing, more is made out of the thing, more is accomplished in a given time, more of the strength of the tobacco is obtained, and the system is more completely saturated with it. *Chewing* is emphatically the *American* habit. The American can *smoke*, *snuff*, and *plug his nose* with tobacco; but all that is not enough—he must *CHEW*.

But what says hydropathy to all this? What says physiology? What the science of health? Moreover, what says political economy, common morality, and even decency itself? Why, plainly and emphatically, "Touch not the unclean thing." It is a more than beastly practice; and, as the couplet hath it,

"Great men and green worms will use their tobacco,
 But ne'er a pig nor his wife; ah! alack, O!"

Tobacco is a good medicine, doubtless, in its proper place; a powerful means of good in certain rare emergencies, although in

those even there are probably better. But as a thing of daily and general use, *it is an abominable drug*.

But one thing may appear singular to the reader: I have written this little work with the expectation of changing the habits of only a few. One might at first think that a book which should in a tolerable degree set forth the great evils of tobacco, would necessarily be the means of reforming multitudes of foolish men. But it is not so. All that the philanthropist, the physician, and the priest can accomplish with those who have become addicted to the use of tobacco, is but as a sand on the sea-shore, or a drop amid the wide ocean. Now and then only a man, such as John Quincy Adams, or the reverend and venerable Doctor Nott, can be found of self-denial sufficient to enable him to cleanse his system of the disgusting, abominable, and life-destroying habit of using tobacco. Often enough we can succeed in convincing a man's judgment; we can get him for a time to leave off his bad habit. But in a short time—a few months at most—we find that he has again slunk back into his old career of misery, disease, and death.

If, then, by this work, I shall be the means of warning the uninitiated, and such as desire light, on an important subject, and thus of keeping them out of a most evil habit, I shall not have spent my efforts in vain.

J. S.

NEW YORK, 1849.

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TOBACCO.

CHAPTER I.

EARLY HISTORY OF TOBACCO.

“Pernicious weed! whose scent the fair annoys;
Unfriendly to society's chief joys:
Thou art indeed a drug the gard'ner wants,
To poison vermin that infest his plants;
But are we so to wit and beauty blind,
As to despise the glory of our kind,
And show the finest minds and fairest forms
As little mercy as the *grubs and worms*?”

THE well-known plant Tobacco, or *Nicotiana Tabacum*, belongs, according to botanists, to the same natural order as *Atropa Belladonna*, commonly known by the name of deadly night-shade, and the *Datura Stramonium*, or thorn-apple, both of which are among the most powerful and deadly of the acro-narcotic poisons. The oil of tobacco, as also an infusion from its leaves, is one of the most virulent poisons known. Like the other poisons mentioned, tobacco has been used for criminal purposes. Besides the essential oil, tobacco contains an acrid alkaline principle, which can however only with difficulty be separated from it. “The empyreumatic oil of tobacco,” says Christison, on Poisons, “is well known to be an active poison, which produces convul-

sions, coma, and death." But of its specific and poisonous effects, I shall speak more fully hereafter.

There are about thirty species of tobacco, each of which possesses very nearly the same properties. Each has a strong, and to the uninitiated, a disagreeable smell, and an acrid, burning taste. Either water or spirits may be used to obtain a decoction or solution of the acrid principle. Heat facilitates the operation. The infusion obtained in spirits is of a deep green color. The watery infusion is of a deep yellowish brown color. Of the thirty species two possess most of the acrid principle, viz., the *Nicotiana Tabacum*, and the *Nicotiana Rustica*.

Concerning the derivation of the *name* of tobacco, there exists among writers a difference of opinion. According to some authorities it came from the word *tobago*, the name of a pipe used in Virginia; others that it came from *Tobago*, one of the West India Islands. The botanical name *Nicotiana* is from M. Nicot, who first obtained the plant from Tobago, and took it to Spain.

That tobacco was unknown to the Europeans prior to the discovery of America by Columbus, authorities generally agree. It is supposed to have been known to the Chinese time immemorial, for the forms of their pipes and their modes of using appear to indicate great antiquity. The tobacco sack or wallet and the pipe are indispensable articles for the every-day use of the Chinaman.

One author, *Meller*, says that the plant was found in the province of Yucatan, in the Mexican Gulf, in a very flourishing state. "Among the natives, who held it in the greatest possible esteem and reverence, from the almost magical virtues they attached to it, it was called

Petun, and by those in the adjoining islands, *Yoli*. So singular a production of the country could but draw the attention of the Spanish commander to it. The consequence was, that a specimen of it was shipped with other curiosities of the country, with a long detail of its supposed astonishing virtues in pharmacy. In the latter end of the year, the plants arrived at their place of destination, and this may fairly be deemed to have been their first entrance into the civilized portions of the world.

“A dreadful disease,” continues this author (an advocate of the weed), “first brought from America by the last return of Columbus, raged about this period with a fearful and unchecked virulency in Spain, committing dreadful devastations on the human frame, and finally ending in the most horrible death the imagination could picture. This circumstance served to procure it a most sanguine welcome; for the sailors composing the fleet, having learned it from the natives, had disseminated the belief that it was the only known antidote against its ravages; that it in fact answered the purpose of mercury in the present day, a belief welcomed with enthusiasm, and ending in despair.”

From Spain tobacco soon found its way to different parts of the civilized world, first to Portugal and then to the other European kingdoms. From Spain and Portugal, it was brought by one of the French ambassadors to Paris. Here it is supposed the practice of snuff-taking first commenced. The same woman, Catharine de Medicis, who was notorious for her instigation of the massacre of the Protestants on St. Bartholomew's day, may be considered the first snuff-taker. She, it is said, used tobacco in the form of powder; and the practice

has certainly been well kept up in that city ever since. From the fact of this queen having used tobacco, it got the beautiful names of *Herba Catharinæ Medicæ*, and *Herba Reginæ*, or the Queen's Herb.

About this time tobacco came under the patronage of Cardinal Santa Crocé, the Pope's nuncio, who in returning from his embassy to the Spanish and Portuguese courts, carried the plant to his own country. This individual had at another time won no small reputation, by bringing from the Holy Land what he affirmed to be a portion of the real cross, and from the general enthusiasm with which tobacco was received in the Papal States, we may believe the account that Santa Crocé's celebrity was as much enhanced by the latter as by the former act.

Santa Crocé thus speaks of the plant he so much admired :

" The herb which borrows Santa Crocé's name,
Sore eyes relieves, and healeth wounds ; the same
Discusses the king's evil, and removes
Cancers and boils : a remedy it proves
For burns and scalds, repels the nauseous itch,
And straight recovers from convulsion fits.
It cleanses, dries, binds up, and maketh warm ;
The headache, toothache, colic, like a charm
It ceaseth soon ; an ancient cough relieves,
And to the veins, and milk, and stomach gives
Quick riddance from the pains which each endures ;
Next the dire wounds of poisoned arrows cures ;
All bruises heals, and when the gums are sore,
It makes them sound and healthy as before.
Sleep it procures, our anxious sorrows lays,
And with new flesh the naked bone arrays.
No herb hath greater power to rectify
All the disorders in the breast that lie,
Or in the lungs. Herb of immortal fame !
Which hither first by Santa Crocé came,
When he (his time of nunciature expired)
Back from the Court of Portugal retired ;

Even as his predecessors, great and good,
Brought home the Cross, whose consecrated wood
All Christendom now with its presence blesses ;
And still the illustrious family possesses
The name of Santa Crocé, rightly given,
Since they in all respects resemble Heaven,
Procure as much as mortal men can do,
The welfare of our souls and bodies too."

As in other countries, tobacco was received with general favor in England, although here as elsewhere it found bitter opponents. It is generally supposed to have been introduced first by Sir Walter Raleigh in 1584, or as some say in 1586. Others, however, regard it more probable that to Sir Walter is only due the honor of having been the first patron of the precious weed, and that it was first introduced into England by Ralph Lane, who returned to that country with Sir Francis Drake in 1560. The earliest evidence of Sir Walter Raleigh's using it seems to have been that of 1584. According to Lobelius, it was cultivated in England in 1570. Clucius says that "the English, on their return from Virginia, brought tobacco pipes made of clay ; and since that time the use of drinking tobacco hath so much prevailed all over England, especially among the courtiers, that they have caused many such pipes made to drink tobacco with." Whatever may be true on the subject, Sir Walter Raleigh appears to have the credit of having been at least its most distinguished patron in the time of its introduction into England. There is an amusing anecdote respecting Sir Walter's early use of the article. There is yet standing at Islington, a public house, called the "Pied Bull," in which the distinguished knight lived. While he was at one time enjoying quietly in his room his favorite pipe, a servant entering, saw his master surrounded by volumes of smoke. Ignorant

of the cause, and alarmed at seeing him, as he supposed, on fire, he rushed from the room and soon returned with buckets of water, with which he completely drenched the distinguished lover of smoke. The assertion which has been made by some, that Sir Walter was executed by King James for his indomitable love of the herb, is doubtless a mistake, as would appear from the testimony of the herbalist Parkinson, who, in speaking of the kind of tobacco, *Nicotiana Rustica*, says, "Although it be not thought so strong or sweet for such as take it by the pipe, yet have I known Sir Walter Raleigh, when he was a prisoner in the town, make choice of this sort to make good tobacco, of which he knew so rightly to cure, as they call it, that it was held almost as good as that which came from the Indies, and fully as good as any other made in England."

CHAPTER II.

INTRODUCTION OF TOBACCO INTO GREAT BRITAIN AND THE UNITED STATES.

"Great men and green worms will use their tobacco,
But ne'er will a pig or his wife, ah ! alack ! O !"

"Tobacco, notwithstanding its powers of fascination, has suffered romantic vicissitudes in its fame and character. It has been successively opposed and commended by physicians, condemned and eulogized by priests and kings, and proscribed and protected by governments ; while at length this insignificant production of a little island, or an obscure district, has succeeded in diffusing itself through every climate, and in subjecting the inhabitants of every country to its dominion. The Arab cultivates it in the burning desert—the Laplander and Esquimaux risk their lives to procure a refreshment so delicious in their wintry solitude ; the seaman, grant him but this luxury and he will endure with cheerfulness every other privation, and defy the fury of the raging elements ; and in the higher walks of civilized society—at the shrine of fashion, in the palace, and in the cottage, the fascinating influence of this singular plant commands an equal tribute of devotion and attachment."—DR. PARIS.

WHILE on the one hand, kings, queens, divines, and physicians, learned soon greatly to relish tobacco, there were on the other, persons of like dignity and influence who as strongly denounced it. By priests to use it was declared sinful. Pope Urban VII. published a bull, excommunicating all persons found guilty of snuffing or smoking during divine service. In the earlier times of New England, also, laws were enacted against the using of tobacco on the Sabbath day. In some parts of Switzerland, as the canton of Berne, in 1661, it is said the public authorities placed the sin of smoking among the ten commandments, and immediately opposite that against adultery. Pope Innocent, in 1690, renewed the bull of Pope Urban, and thirty years after this, the Sul-

tan Amurath IV., it is said, made the use of tobacco a capital offence, on the ground of its causing infertility. At one time smoking was forbidden in Russia, on penalty of having the nose cut off, and at a subsequent period, the punishment was mitigated to the offender being conveyed through the streets with a pipe bored through the nose. This last mode of punishment reminds us of the awfully barbarous persecutions which were inflicted on the Quakers and Baptists at an early period of the Puritanic sway in New England, when holes were bored through men's ears for the crime of being a Quaker, and when both Quakers and Baptists were put to death for persisting in worshipping God according to the dictates of their own conscience.

Of all the enemies tobacco has had to encounter, King James I. stands pre-eminent. All who are acquainted with the history of the plant, have read of his famous *Counterblaste of Tobacco*. "Tobacco," says King James, "is the lively image and pattern of hell; for it hath, by allusion, in it, all the parts and vices of the world, whereby hell may be gained; to wit, first it is a smoke—so are all the vanities of this world; secondly, it delighteth them that take it—so do all the pleasures of the world delight the men of the world; thirdly, it maketh men *drunken* and light in the head—so do all the vanities of the world; men are drunken therewith; fourthly, he that taketh tobacco cannot leave it, it doth bewitch him—even so the pleasures of the world make men loth to leave them; they are for the most part enchanted with them. And, further, besides all this, it is like hell in the very substance of it; for it is a stinking, loathsome thing, and so is hell. And finally, were I to invite the devil to dinner, he should have three dishes: first, a pig; second

a poll and ling of mustard ; and third, a pipe of tobacco for digesture. Have you not reason to forbear this filthy novelty, so basely grounded, so foolishly received, and so grossly mistaken in the right use thereof? In your abuse thereof, sinning against God, harming yourselves both in person and goods, and raking also thereby the marks and vanities upon you ; by the custom thereof, making yourselves to be wondered at by all foreign nations, and by all strangers that come among you, to be scorned and contemned!" And King James closes his Counterblaste with the following remarkable passage : "*It is a custom loathsome to the eye, hateful to the nose, harmful to the brain, dangerous to the lungs, and, in the black, stinking fumes thereof, nearest resembling the horrible Stygian smoke of the pit that is bottomless.*"

Camden, the historian, speaking of the introduction of tobacco into England, says : "Some through wantonness, with inexpressible greediness sucked in, through an earthen pipe, its excessively stinking smoke, which they afterward blew out of their nostrils ; insomuch that tobacco shops are not less frequent in towns than ale-houses and taverns, so that Englishmen's bodies, which are so delighted with this plant, seem, as it were, to be degenerated into the nature of barbarians."

Joshua Sylvester, a poet and cotemporary of King James I., wrote a poem against tobacco, which bore the following curious title : "*Tobacco battered and the pipes shattered (about their ears that idly idolize so base and barbarous a weed, or, at leastwise, over-love so loathsome a vanitie), by a volley of holy shot thundered from Mount Helicon.*" This author considered tobacco a provocative to intemperance, and in the following lines in-

geniously derives its name from Bacchus, the god of strong drink :

“ Which of their weapons hath the conquest got
Over their wits ; the pipe or else the pot ?
For even the derivation of the name
Seems to allude to, and include the same :
Tobacco, as τω Βαχχω—one would say ;
To cup-god Bacchus dedicated ayο.”

The invention of guns and tobacco-pipes, Sylvester regarded as being of Satanic origin, and foretold in the Apocalypse—as appears in the following lines :

“ Two smoky engines, in this latter age,
(Satan’s short circuit, the more sharp his rage,)
Have been invented by too wanton wit,
Or rather vented from th’ infernal pit,—
Guns and tobacco-pipes, with fire and smoke,
At least a third part of mankind to choke,
(Which happily th’ Apocalypse foretold ;)
Yet of the two we may, I think, be bold
In some respect to think the last the worst,
(However both in their effects accurs’d ;)
For guns shoot from-ward only at their foe,
Tobacco-pipes home-ward into their own,
When, for the touch-hole firing the wrong end,
Into ourselves the poison’s force we send.”

Sylvester’s description of tobacco and its votaries, runs thus :

“ Of all the plants that Tellus’ bosom yields,
In groves, glades, gardens, marshes, mountains, fields,
None so pernicious to man’s life is known
As is tobacco, saving *hemp* alone.
If there be any herb in any place
Most opposite to God’s good Herb of Grace,
’Tis doubtless this ; and this doth plainly prove it,
That, for the most part, graceless men do love it,
Or rather dote most on this withered weed,
Themselves as withered in all gracious deed.

If then tobaccoing be good, how is’t
That **lewdest**, **loosest**, **basest**, **foolishest**,

The most unthrifty, most intemperate,
Most vicious, most debauched, most desperate
Pursue it most ; the wisest and the best
Abhor it, shun it, flee it as the pest ?”

There was one rather amusing occurrence which every one will recollect, of the times in which tobacco was introduced into England. In the beginning of the seventeenth century, the early planters of Virginia were nearly or quite all single men. They considered themselves as merely transient residents of the colony, and their habits became dissolute. As a remedy for this evil, the company in London determined to transport a number of young ladies to supply the planters with wives, the very best means certainly that could possibly be devised. But it was singular enough that these young ladies should be made things of merchandise. “A cargo of these fair creatures,” we are told, “was accordingly dispatched, and was received with the greatest delight and enthusiasm by the planters ; but the wary merchants at home had taken care to make their consignment a mere mercantile transaction, and each young lady was obliged to find a lover who would give an hundred and twenty pounds of tobacco in exchange for her fair self, to pay the expenses of the voyage.” Such a speculation as this would, as a matter of course, prove abundantly successful.

Notwithstanding all that King James and others of his time wrote against the use of tobacco, and the immense duty that he caused to be levied upon the article, it yet grew rapidly in public favor, as it has done in all countries where it has been introduced, and in what country has it not ? Certainly in all that are civilized.

Thus, amidst fierce opposition on the one hand, and advocacy on the other, tobacco has passed through its

different phases of popular favor, until at length it has become an universal favorite with the rich and the poor, the high and the low, and the learned and the ignorant. Within a few years past especially, its use has been exceedingly popular. Such at least is the fact in our own country. Go through the pleasantest streets of our prominent cities, all except Boston, or to the best hotels of the beautiful New England towns, not omitting those that hold forth the banner of temperance reform, and we find evidence enough of the repute in which tobacco is held among us. Were a stranger unacquainted with these things, to observe the habits of Americans in the use of tobacco, he might easily enough conclude that we delight in nothing so much as,

“To sing the praises of that glorious weed,
Dear to mankind, whate’er his race, his creed,
Condition, color, dwelling or degree !
From Zembla’s snows to parched Arabia’s sands,
Loved by all lips, and common to all hands ;
Hail, sole cosmopolite ! tobacco, hail !
Shag, long-cut, short-cut, pig-tail, quid, or roll
Dark negro-head or Orinooka pale,
In every form congenial to the soul.”

CHAPTER III.

NATURE AND PROPERTIES OF TOBACCO.

"Stinking'st of the stinking kind,
Filt of the mouth and fog of the mind,
Afric, that brags her foyson,
Breeds no such prodigious poison,
Henbane, nightshade, both together,
Hemlock, aconite——."

CHARLES LAMB.

ACCORDING to the United States Dispensatory, "Tobacco is an annual plant, with a large fibrous root, and an erect, round, hairy, viscid stem, which branches near the top, and rises from three to six feet in height. The leaves are numerous, alternate, sessile, and somewhat decurrent, very large, ovate, lanceolate, pointed, entire, slightly viscid, and of a pale green color. The lowest are often two feet long, and four inches broad. The flowers are disposed in loose terminal panicles, and are furnished with long, linear, pointed bractes at the divisions of the peduncle. The calyx is bell-shaped, hairy, somewhat viscid, and divided at its summit into five pointed segments. The tube of the corolla is twice as long as the calyx, of a greenish hue, swelling at top into an oblong cup, and ultimately expanding into a five-lobed, plaited, rose-colored border. The whole corolla is very viscid. The filaments incline to one side, and support oblong anthers. The pistil consists of an oval germ, a slender style longer than the stamens, and a cleft stigma. The fruit is an ovate, two-valved, two-

celled capsule, containing numerous reniform seeds, and opening at the summit."

It was remarked in the beginning, that according to botanical arrangement, tobacco belongs to the same natural order as *Atropa Belladonna*, or deadly nightshade, and *Datura Stramonium*, or poison thorn-apple, both of which are among the most powerful and deadly of the acro-narcotic poisons of the vegetable kingdom, and that the essential oil of tobacco, as also an infusion from its leaves, is one of the most virulent poisons known. "The empyreumatic oil of tobacco," says Christison, in his work on Poisons, "is well known to be an active poison, which produces convulsions, coma, and death." There are a variety of facts and authorities on this point, some of which I will cite.

According to Dr. Waterhouse, Linnæus has placed in his natural arrangement tobacco in the class *Luridæ*, which signifies pale, ghastly, livid, dismal, and fatal. "To the same ominous class," he adds, "belong fox-glove, henbane, deadly nightshade, lobelia, and other poisonous plants, bearing the tremendous name, 'Atropa,' one of the furies." When tobacco is taken into the stomach for the first time, it creates a nausea and extreme disgust. If swallowed, it excites violent convulsions of the stomach and bowels to eject the poison either upward or downward. If it be not very speedily and entirely ejected, it produces great anxiety, vertigo, faintness, and prostration of all the senses; and in some instances death has followed. "The oil of this plant," he adds, "is one of the strongest vegetable poisons, inasmuch as we know of no animal that can resist its mortal effects." Dr. Waterhouse, who had ample opportunities for observation, said, "he never observed so

many pallid faces, and so many marks of declining health, nor ever knew so many hectic habits, and consumptive affections, as of late years; and I trace this alarming inroad on young constitutions principally to the pernicious custom of smoking cigars."

Of *nicotia*, *nicotin*, or *nicotina*, the active or poisonous principle of tobacco, Dr. Wood, one of the authors of the United States Dispensatory, observes, "that it is one of the most virulent poisons known; and that a drop of it, in the state of concentrated solution, was sufficient to destroy a dog; and small birds perished at the approach of a tube containing it."

Soldiers have not unfrequently disabled themselves from duty by applying a moistened tobacco leaf to the arm-pit, which causes great prostration and vomiting, and violent sickness after eating.

Great prostration and nausea have been caused by placing only a part of the hand, for a few minutes, in a strong infusion of tobacco.

Orfila, the celebrated French writer on poisons, says, "A woman applied to the heads of her children, for a disease of the scalp, an ointment prepared with the powder of tobacco and butter; soon after they experienced dizziness, violent vomitings, and faintings, accompanied with profuse sweats."

A decoction or tea made from a few grains of tobacco, and given to relieve spasms, has been repeatedly known to destroy life.

The tea of tobacco, applied to the pit of the stomach occasions fainting, giddiness, vomiting, and cold sweats. The tea, when rubbed upon sores, ulcers, ringworms and parts affected with itch, has been known to cause vomitings, fainting, and convulsions.

Persons under the influence of strong excitement or emotion have, by unconsciously chewing large quantities of tobacco, become terribly sick.

Dr. Mussey, formerly of New England, a very able physician, surgeon, and writer, upon different subjects connected with health, made a variety of experiments upon animals, with the view to ascertain the effects of tobacco. Cats, dogs, mice, squirrels, etc., were killed in a few minutes by the application of a small quantity of the oil of tobacco to the tongue, or by introducing it into the circulation.

Dr. Eberle, in a Treatise of the *Materia Medica* and Therapeutics, remarks, "That in employing the tobacco injection, it is of the utmost importance to proceed with very great caution. If the quantity injected be too great, it will produce the most alarming symptoms, such as vomiting, cold sweats, universal prostration, syncope, and even death. I have known an empiric," continues Dr. Eberle, "destroy in less than twenty minutes, the life of a charming little boy—the son of a gentleman at Lancaster, whose family I attended while residing in that place—by an immoderate injection of the infusion of tobacco."

In the Sandwich Islands, where tobacco is so generally used that children are taught to smoke before they are able to walk, adults sometimes carry the practice to such excess that they fall down senseless, and suddenly die. So we are told by those who have visited those islands.

"A Hottentot," says Mr. Barrow, a traveler in Africa, "applied some of it (the oil of tobacco) from the short end of his wooden pipe to the mouth of a snake while darting out his tongue. The effect was as instantane-

ous as that of an electric shock. With a momentary convulsive motion, the snake half untwisted itself, and never stirred more; and its muscles were so contracted that the whole animal felt as hard and rigid as if dried in the sun."

The Indians in some parts of our country, it seems, were acquainted with the poisonous effects of tobacco. They were in the habit of dipping the points of their arrows in an oil obtained from the leaves of tobacco, we are told, which being inserted into the flesh, occasioned sickness and fainting, or even convulsions and death.

Dr. Mussey made, among others, the following experiments: "Two drops of oil of tobacco, placed on the tongue, were sufficient to destroy life in cats which had been brought up, as it were, in the midst of tobacco smoke, in three or four minutes. Three drops, rubbed on the tongue of a full-grown cat, killed it in less than three minutes. One drop destroyed a half-grown cat in five minutes. Two drops on the tongue of a red squirrel destroyed it in one minute. A small puncture made in the tip of the nose with a surgeon's needle, bedewed with the oil of tobacco, caused death in six minutes." This author also observes, that "the tea of twenty or thirty grains of tobacco, introduced into the human body for the purpose of relieving spasms, has been known repeatedly to destroy life."

Professor Hitchcock, says, "I group *alcohol*, *opium*, and *tobacco* together, as alike to be rejected, because they agree in being poisonous in their natures. In popular language, alcohol is placed among the stimulants, and opium and tobacco among the narcotics, the ultimate effect of which upon the animal system, is to produce stu-

por and insensibility. Most of the powerful vegetable poisons, such as henbane, hemlock, thorn-apple, prussic acid, deadly nightshade, foxglove, and poison sumach, have an effect on the animal system, scarcely to be distinguished from that of opium and tobacco. They impair the organs of digestion, and may bring on fatuity, palsy, delirium, and apoplexy. In those not accustomed to it, tobacco excites nausea, vomiting, dizziness, indigestion, mental dejection, and in short, the whole train of nervous complaints."

Dr. Rees, author of a Cyclopaedia, says, "A drop or two of the chemical oil of tobacco being put upon the tongue of a cat, produces violent convulsions, and death itself in the space of a minute."

Barbarous experiments have been made upon mice by placing a small portion of the oil of tobacco on a fine cambric needle, and piercing it into the nose of the animal; this is found to produce death almost instantaneously.

Dr. Clay, of Manchester, England, gives the following case: "A little boy, aged eight years, had been long affected with *tinea capitis*, or scald head, which had proved very obstinate. His father applied over his head the expressed juice of tobacco, obtained by wetting the dried tobacco leaves, then placing them between two iron plates and pressed, by which means the juice is extracted. The fluid was applied at five minutes before two in the afternoon; the child almost immediately complained of giddiness and loss of sight, so that his father smilingly observed, 'the boy is drunk;' he soon after became sick, vomited frequently, and in large quantities; he had also a desire to evacuate the bowels, which he could not accomplish; his limbs tot-

tered, his face grew pale, and became covered with a cold sweat; his mother helped him to bed, into which he had no sooner entered than he had an involuntary discharge from the bowels; his countenance now appeared sunk; his limbs were motionless, excepting now and then, when his legs were drawn toward the abdomen convulsively; he complained of violent thirst, and pain in the bowels; his whole body was bedewed with a cold sweat, and at half past five he expired, only three hours and a half after the application. On dissection, no organic change was perceptible." Severe sickness, and not unfrequently death, have been caused by the external application of tobacco for diseases of the skin. I might quote from medical works, numbers of cases of this kind.

The internal application of tobacco is, however, more dangerous than the external. A very small quantity in the form of enema or injection has not unfrequently been known to produce death. It is lamentable to notice in medical works on poisons, the numbers of cases of this kind. Christison, an author before referred to, cites from M. Tavignot the following two cases:

"An infusion prepared by mistake, with two ounces and one drachm, instead of one drachm and a half, was used as an injection for a stout man affected with ascarides. In seven minutes he was seized with stupor, headache, paleness of the skin, pain in the bowels, indistinct articulation, and slight convulsive tremors, at first confined to the arms, but afterward general. Extreme prostration and slow, laborious breathing soon ensued, and then coma (or deathly fainting), which ended fatally in fifteen minutes."

Dr. Grahl, of Hamburgh, some years ago, published

a case in which a female quack administered by injection to a lady, about an ounce of tobacco, boiled in water for fifteen minutes. The patient, who labored merely under dyspepsia and obstinate constipation, was seized in two minutes with vomiting, violent convulsions, stertorous breathing, and died in three quarters of an hour. In the form of injection, two drachms (a fourth part of an ounce), or even a drachm and a half, are considered by no means a safe dose. A single drachm in infusion has been known to kill the patient. More cases than one of this kind are on record. A case of this kind is mentioned by Dr. Christison, as having not long since taken place at Guy's Hospital, in London. The patient died in thirty-five minutes.

Dr. Paris, a medical writer of celebrity, tells us that he witnessed a lamentable instance of the effects of tobacco, where a patient had been exhausted by previous suffering: "A medical practitioner, after repeated trials to reduce a strangulated hernia, injected an infusion of tobacco, and shortly afterward sent the patient in a carriage to Westminster Hospital for the purpose of undergoing the necessary operation, but the unfortunate man arrived only a few minutes before he expired." "Any quantity of infusion containing more than half a drachm of tobacco," Dr. P. further remarks, "cannot be injected without danger." "Tobacco clysters," he also observes, "were some years since recommended for the purpose of forwarding difficult parturition (labor), but the alarming symptoms which followed in the only case in which it was tried prevented a repetition of the experiment."

Sir Astley Cooper and Sir Charles Bell have both recorded cases of a similar kind. The latter surgeon, in speaking of the use of tobacco in a case of strangulated

hernia, says, "The patient's strength held up until the tobacco clyster (injection) was administered to him, after which he very suddenly fell low and sank." Numbers of instances of a similar kind could be quoted from medical authorities.

Tobacco appears to be an equally deadly poison when introduced into the stomach. The celebrated French poet SANTEUIL was accidentally killed in this way at the Prince of Condé's table. A portion of Spanish snuff was put by one of his companions, a practical joker, into his glass of wine—this after the bottle had passed rather freely. Soon after drinking the draught, the poet "was attacked with vomiting and fever, and expired in two days amid the tortures of the damned."

Proving the poisonous character of tobacco administered by the stomach, Dr. Christison cites a case that was furnished him by Dr. Ogston, of Aberdeen, Scotland, who was employed in the judicial investigation connected with it. "An elderly man, a pensioner, was seen to enter a brothel while in perfect health, and in an hour he was carried out insensible, and was put down in a passage, where he was found by the police unable to speak or move. While carrying him to the watch-house, hard by, the officers observed him to attempt to vomit; but he was scarcely laid down before the fire when he expired. It was ascertained that he had drank both rum and whiskey in the brothel, and that something had been given him 'to stupefy him or set him asleep.' On dissection, the blood was found every where very fluid, and four ounces of serosity, or watery substance, were found collected from the lateral ventricles and base of the skull. But there was no other unusual appearance, except that the stomach contained about four

ounces of a thick brownish pulp, in which were seen several pellets of a powder resembling snuff. In these contents, Dr. Ogston could detect no opium, only tobacco. No doubt could exist that the man died of poisoning with tobacco ; but as no evidence could be obtained to inculcate any one in particular of many individuals who were in the brothel with him, the case was not made the subject of trial."

The fumes of tobacco, as taken into the system by smoking, have been known to cause death. Not long since, in Salem, Massachusetts, the death of a lad named James Barry, aged twelve years, was said in the papers to have been caused by excessive smoking of cigars. Gruelin, a German medical author, states two instances of death from smoking, one person having accomplished seventeen pipes, the other nineteen at a sitting. Dr. Clay, of England, says another German author states, "that one half the deaths occurring in that country between the ages of eighteen and twenty-five, is attributable to smoking and chewing." To one who has traveled in that country, and witnessed the almost incredible amount of smoking that is every where practiced, this assertion would not appear so incredible.

There is an interesting account of the effects of the fumes of tobacco in a particular case quoted by Dr. Clay, of Manchester, England. He says, "It occurred to Mr. Howison, on a voyage. When the evening was pretty far advanced, the master of the schooner conducted him to the cabin, which was almost full of large packages, and pointing out where he was to sleep left him alone. He felt a heavy suffocation, but did not examine the contents of the bales, and went immediately to bed. Soon afterward he was harassed by wild and

frightful dreams, and suddenly awoke about midnight bathed in cold dew, and totally unable to speak or move; however, he knew perfectly well where he was, and recollected every thing that had occurred during the day, but he could not make any bodily effort whatever, and tried in vain to get up, or even change his position. The watch on deck struck four bells, and he counted them, though he did not hear the beats, but received the vibrations through his body. About this time, a seaman came into the cabin with a light and carried away an hour-glass that hung upon a nail, without observing him, though he made several efforts to attract his attention. Shortly after a pane of glass was broken by accident in the sky-light, and he saw the fragments drop on the floor. These circumstances actually occurred, as he found on inquiry the next day, and he mentioned them to prove that the sensations he described were realities, and not the offspring of perturbed dreams. The inability to move was not accompanied with pain or uneasiness, but he felt as if the principle of life had departed from his frame. At length he became totally insensible, and continued so until an increase of wind made the sea a little rough, causing the vessel to roll. The motion had the effect of awakening him from his trance, and he contrived somehow or other to get up and go on deck. His memory was totally lost for about a quarter of an hour, and had no idea connected with any thing that was not present before him. He knew that he was in a schooner, but nothing more. While he was in this state, he saw a man drawing water from the sea in buckets, and requested him to pour one on his head; after some hesitation the man did so, and all his faculties were immediately restored, and he acquired a most vivid

recollection of a vast variety of ideas and events which appeared to have passed through his mind, and occupied him during the time of his supposed insensibility. All this singular derangement had arisen from a copious inhalation of the fumes of tobacco ; for, on examining the cabin, he found that the piles of packages consisted of that narcotic plant, and that quantities of it even lay under his bed ; in short, that the vessel contained nothing else."

I am no friend to the barbarous and indiscriminate experimenting on animals which some anatomists and physiologists of modern times are so fond of. When a valuable principle of science is to be elicited, something that promises to be a means of ameliorating the condition of man, such experiments are legitimate and allowable, but not otherwise. Long since, lamentable experience had too often proved the poisonous character of tobacco, so that experiments on that point were not needed. Yet they have been made over and over again, with no other object than to gain notoriety in things which are extremely revolting to every humane, sensitive mind. Let, therefore, no more experiments be made on either man or animals, to prove the highly poisonous and destructive character of tobacco. If one should rise from the dead, the evidence could not be made more clear and positive than it now is.

CHAPTER IV.

EFFECTS OF TOBACCO.

"The grand characteristic of all narcotic substances, is their *anti-vital* or life-destroying property. When they are not so highly concentrated or energetic as to destroy life instantly, they produce the most powerful and often the most violent and distressing vital reaction, which causes a corresponding degree of exhaustion, depression, and prostration; and they often destroy life, purely by vital exhaustion in this violent and continued vital reaction. But when the discriminating sensibilities of the system have been depraved by the habitual use of these substances, and its powers of giving a sympathetic alarm greatly impaired, these same substances, even the most deadly in nature, if the quantity be only commensurate with the degree of physiological depravity, may be habitually introduced into the stomach, and even received into the general circulation and diffused over the whole system, and slowly but surely destroy the constitution, and always greatly increase the liability to disease, and almost certainly create it, and invariably aggravate it, without any of those symptoms which are ordinarily considered as the evidences of the action of a poison on the living body; but on the contrary, their stimulation is attended with that pleasurable feeling, and agreeable mental consciousness, which lead the mind to the strongest confidence in their salutary nature and effect."—GRAHAM'S SCIENCE OF HUMAN LIFE.

THAT we may gain a more clear and correct idea of the specific and varied effects of tobacco on the human frame, some remarks of a physio-pathological nature will be necessary.

The various substances that are taken into the human system as sustenance or a means of excitement, may be divided into three great classes: first, simple water, by and through which all the vital processes are carried on, and of which the living body is mostly composed—there being about 90 parts in the 100 by weight of simple water; second, nutritious substances, such as the mother's milk, the esculent fruits, vegetables, grains, etc

—things which are merely nutritious in their character, and contain no stimulating, narcotic, or medicinal principle ; and third, substances which exert upon the living system a medicinal or excitant effect, and without affording any nourishment to the system. The first of these substances, by far the most universal and abundant in nature, is the best, most natural, and in an undepressed state of the animal instincts, the most agreeable of all drinks. It is, moreover, the only one nature demands. But of itself, when pure and unadulterated by human inventions, water is, in its nature, an inert substance. Applied of a suitable temperature to the most delicate of the living tissues, it produces no excitement or vital reaction. It acts, however, by its temperature, cooling the body or warming it, as the case may be. It acts, moreover, by moistening and lubricating the different parts, and affords throughout the entire system that amount of fluid which is indispensable to life and health, composing, as before remarked, by far the larger portion of the whole system by weight.

Substances of the second class mentioned, act in some respects differently from simple water, although they contain usually a very large proportion of that fluid in their composition. Thus milk is more than 90 per cent. water. The undried fruits contain about the same proportion. Beef tea is composed of between 98 and 99 per cent. simple water. A piece of plain beef-steak uncooked contains between 74 and 75 per cent. water, and common bakers' bread of the white or superfine kind, about 35 per cent.

When there is in the system a natural and healthful demand for nutriment, the substances generally used for nourishing the body, particularly those of the vegetable

kingdom, are received as friendly agents, so to speak. They excite upon the living tissues no undue stimulation or excitement. When the infant at the breast needs nourishment, there is nothing so friendly and grateful to its system as the pure milk from the maternal breast. After the teeth have made their appearance, it readily takes to substances of more substantial form, as fruits and the preparations of farinaceous food. Gradually it comes to subsist wholly on the more substantial articles, leaving altogether the food it was at first accustomed to take.

As regards the third class of substances mentioned, those of a stimulating, excitant, or medicinal kind, it is different. No child at first loves medicine, spirits, tobacco, tea, coffee, and other substances of a medicinal kind. I know it will be said that children very soon learn to relish tea and coffee, toddy, and, in some cases, tobacco, substances of the stimulating or medicinal class. It is true, almost every child in the civilized portions of the world at the present day, has some of these articles introduced into its system, almost from the very first. Perhaps in the very first draught of milk it receives from its mother, there is a portion of one or another of the articles in question, for the lacteal secretion is a great vehicle and outlet for all medicinal or drug articles that are taken into the system. In this wise infants have often been stupefied and made actually drunk, through the milk of the toddy-drinking or tippling mother or nurse. Infants have been often narcotized and poisoned by medicines received in this way, and it is believed that life itself has been thus destroyed. Even tobacco, loathsome as it is to the uninitiated, some children are taught to relish, by being subjected daily to

the fumes of the detestable weed. Long before infants have left the breast, I have known mothers and wise old grand-mammas teach them to suck as well at the pipe, which themselves in their depraved appetites so much relished, and for which they daily thanked God in their hearts, as much as for the bread they ate, and to deprive them of which, nothing in the wide world would cause them so much uneasiness and discontent. But all this does not prove that the infant naturally relishes any of these stimulants in common and almost universal use. All correctly-ascertained experience goes to prove the contrary. Even adult persons of undepraved appetites and instincts loath every one of these articles, as very poison. If we have not been subjected to the influence in any way, such will be the uniform result. From alcohol, tobacco, tea, coffee, and so throughout the whole farrago of drugs and other stimulants, the animal instincts of an undepraved system always and invariably reluctate.

In the light of these physiological principles, we may then proceed to investigate in detail the effects of tobacco on the human system, in the various forms in which it is used.

When tobacco is taken into the stomach in quantity sufficient to cause any considerable effect, extreme nausea and disgust and prostration follow. It excites also severe convulsions of the stomach and bowels to eject the poison. The infusion of a quantity so small as a single drachm into the bowels, has not unfrequently destroyed life. So also in the common modes of using the article, as by smoking and chewing, nausea, sickness, and sometimes vomiting are caused. I well recollect myself, when at the age in which boys begin to

think themselves men, and desire to imitate the foolish customs and practices so common among certain classes, I undertook to learn to chew. But before the first effort was half finished, I was fortunately made so sick that I have never wished to make the experiment again. Such is the effect upon all persons when they first commence either smoking or chewing, unless they are brought gradually under the influence of the drug, by being often subjected to its fumes from others' smoking. The father or elder brothers, or mother or grandmother, are in the habit of smoking in the house, and as before remarked, the pipe is sometimes put into the mouth of the children, and thus gradually the habit may be acquired without sickness being produced, as in the other instances. But most users of tobacco can tell us of the times when they were nauseated, and made extremely sick in commencing its use.

But by degrees the system becomes accustomed to its effects. And here we have a proof of the remarkable phenomenon in animal physiology, that a substance which at first is nauseous, loathsome, disgusting, offensive, and which is capable of suddenly destroying life, by use comes at length to be relished by the system as its best friend. And more than this, the system becomes so habituated to its effects, that it seems well-nigh impossible for the individual to subsist without it. Behold the woman who has drank tea so much and so long that she experiences habitually *tea headaches*. She takes a "good, strong cup," and all at once, as if by magic, the headache is gone. Judging from the experience of the moment, she is led to believe that tea is a most sovereign remedy for the headache. But if she knew enough of the human system to take a more ex-

tended view of the matter, she would perceive that the very thing which appeared for the time to be so good a remedy, is the *cause* of the difficulty she experiences. So, too, the unfortunate inebriate, when he attempts to reform his habits, and feels that "aching void" which none can appreciate except those who have experienced it, takes again to his cups, every sensibility of his system most emphatically tells him that of all things earthly, spirits is the very best. And the same principle holds good with tobacco, which obtains over men a more powerful dominion than either of the stimulants mentioned, enslaving them to a perhaps greater degree than that of any other substance, opium not excepted.

Thus it is in the physiology of the human system: a substance which is at first, to the pure and undepraved appetite, loathsome, disgusting, and sickening, becomes at length relished as a most friendly agent; and, to use a figure, the nerves of sensation become the angels of darkness, whereas they were, in the primitive state of nature, the angels of light. These principles of physiological science are of immense importance, and cannot be too deeply pondered by all who desire to live, as far as may be, in the permanent enjoyment of bodily and mental strength.

CHAPTER V.

EFFECTS OF TOBACCO—(CONTINUED).

"From the habitual use of tobacco, in either of its forms, of snuff, eud, or eigar, the following symptoms may arise:—A sense of weakness, sinking or pain at the pit of the stomach, dizziness or pain in the head, occasional dimness or temporary loss of sight, paleness and sallowness of the countenance, and sometimes swelling of the feet, an enfeebled state of the voluntary muscles, manifesting itself sometimes by tremulousness, weakness, squeaking, a hoarseness of the voice, rarely a loss of voice, disturbed sleep, starting from early slumbers with a sense of suffocation, or feeling of alarm, incubus, or nightmare, epileptic or convulsive fits, confusion or weakness of the mental faculties, peevishness and irritability of temper, instability of purpose, seasons of great depression of the spirits, long fits of unbroken melancholy and despondency, and, in some cases, entire and permanent mental derangement."—DR. MUSSEY.

TREMORS OF THE NERVES.

TOBACCO acts upon the living body probably through both the circulation and the nervous system. Any thing that is capable of producing such sudden and complete prostration as large doses of tobacco, must be supposed to act short of going the rounds of the circulation. We know, however, that the drug is in the end absorbed in a greater or less degree, and taken into the circulation, but its more sudden and prominent effect must be upon the nerves. Persons who have been for a time accustomed to it become gradually more and more *nervous*, as the common expression is; the hand trembles, sleep becomes less sound, and the individual not unfrequently starts in his slumber as if haunted by a ghost. I never knew a man of nerve strong enough to withstand the effects of tobacco. Some think they have; but it may

always be seen that the hand of the smoker or chewer is tremulous, at least betimes, if we watch him on rising in the morning. One worthy old man I knew well, who had used tobacco to great excess ; his teeth were worn up to the gums before the age of sixty, his hands became so trembling that he could scarcely convey the food to his mouth. He was a man of exceedingly robust constitution, and labored at all seasons of the year in the open air ; otherwise the effects of the poison on his system would have been still more baneful. This is, I admit, an extreme case ; yet it is only an exemplification of what takes place to a less injurious extent, in multitudes of instances, in every community where tobacco is used. I repeat, all smokers and chewers have sooner or later tremulous hands.

It was related by Dr. Rush, that Sir John Pringle was afflicted with tremors in his hands, and had his memory impaired by the use of snuff ; but on abandoning the habit at the suggestion of Dr. Franklin, he found his power of recollection restored, at the same time recovering the use of his hands.

Irresolution, changeableness of mind, and a reluctance to engage in the ordinary avocations and pursuits of life, all of which are indications of deranged nerves, are symptoms often found attending the use of tobacco.

HYPOCHONDRIASIS.

Hypochondriasis, vapors or melancholy, is a very singular disease. There are probably in our country, of inveterate smokers and chewers of tobacco, more hypochondriacs than in any other on the face of the globe. Many a case of this kind is caused in great part by to-

bacco. This is proved by the fact that when the tobacco is discontinued, the hypochondria is cured. It is a very singular disease, and belongs more properly to the class of *neuroses*, or diseases of the nervous system. Hypochondriacal persons may be said to be in a state of partial insanity. They can generally reason accurately on all subjects except such as immediately concern themselves. They imagine often that every thing conspires to operate against them; their business, however prosperous, they imagine is going to ruin; surrounded by kind friends and all the conveniences and comforts that wealth can procure, they are yet haunted perpetually with the idea that they are coming to want. But more frequently it is in regard to the individual's health that the mind is disordered.*

The *causes* of hypochondriasis I admit are numerous. Any thing that tends powerfully to deteriorate and

* Dr. Mackintosh thus describes this disease: "Hypochondriac symptoms affect two classes of individuals: 1. Those whose ailments are only imaginary or functional; and, 2. Those whose complaints are produced by organic disease. The first class of patients embraces the idle, the wicked, the dissipated, and those who are brought up without a profession, who, when left to their own resources, know not how to kill time. The minds of such persons are enervated from a want of due exercise of the faculties they may actually possess, till at last the vital actions become weakened; some of the natural functions, particularly those performed by the stomach and bowels, may be impaired; at which time, should a friend die, or the history of a disease fall in their way, they will immediately fancy themselves affected with the same disorder. Or they may have a hundred and fifty different complaints, and think they experience a thousand strange sensations and unaccountable feelings, till bodily disease is, in the end, ingrafted on the mental. The organic disease acts upon the mind, producing a state which, to say the least of it, is far from one of insanity. The primary disease may be functional or structural. If the former, the stomach and bowels will in general be found to be the parts at fault; and I have sometimes discovered, on dissection, diseased states of the liver, lungs, kidneys, bladder, heart, blood-vessels, and also of the brain and its membranes."

derange the general health may bring on this protean affection. Excessive alimentation, spirits, tea and coffee, the abuse of medicines, indolence, licentious habits, dissipation of whatever kind, the keeping of late and irregular hours, novel-reading, grief, excessive bodily or mental labor, and a great variety of causes, may aid in bringing on hypochondriasis. All that I say, then, in regard to the use of tobacco as a cause of this affection, is this: Tobacco, being one of the most powerful and deadly narcotics known, if used habitually, and in such quantity as seriously to derange the nervous system, and through this the general health, may, and often does, become a cause of that most troublesome and intractable disease. But neither tobacco, nor any other agent, can be a *specific* of this disease.

HYSTERIA.

Hysteria, or, in common parlance, hysterics, one of the *neuroses*, and a most singular affection, is also to be mentioned as one of the effects of tobacco. Hysteria, although, in its original signification, an affection belonging exclusively to females, is nevertheless not unfrequently to be found with all its distinctive features in the opposite sex. As is well known, it often causes fits of alternate laughing and crying; and at the same time the pitiable subject seems to have a heavy ball in the abdomen, that rises toward the stomach, chest, and neck, producing at the same time a sense of strangulation: There is sometimes partial unconsciousness and convulsions. This, then, a nervous disease, is sometimes caused mainly, or in part, by tobacco. Be it understood, however, that I admit there are many cases of hysteria

where the drug has had nothing to do in the matter, it never having been used. All I claim is, that tobacco is *one* of the many causes of this most singular disease.*

* No persons are more to be pitied than those who suffer from hysteria. That this statement is true, will appear from the following facts:

"In a late number of the *American Journal of Insanity*, we find the following remarks made by Dr. BRIGHAM, one of its editors, and physician of the New York State Lunatic Asylum near Utica. We need hardly add, that the doctor is a learned and able man, and well qualified to give opinions on medical subjects. The remarks were made in giving evidence in the case '*The People vs. John Johnson*, indicted for the murder of Betsey Bolt,' tried at Binghamton, May 7th, 1846. On the cross-examination, Dr. B.'s testimony was as follows:

" 'Persons subject to hysterics for years, have a tendency to insanity; and hysterical women do the most strange things of any class of persons, sane or insane. I speak from my own observation, and history attests its correctness. Hysterical women will deceive their friends, and frequently their physicians, by inventing stories, with little if any regard to truth; and will, in carrying on the deception, submit to painful operations, by the physician or surgeon, and I am not prepared to say but that they do in fact deceive themselves. I do not attribute their false statements to moral obliquity, theologically speaking, as the obliquity is produced by disease. They are apparently sincere, and I have never known one to own the deception. It is a diseased state of the nervous system, and I think the subject is irresponsible. [The doctor here enumerated instances where males and females pretended to be strangely affected, and submitted to painful and unpleasant operations, and some of those affected in this manner have succeeded in carrying out the deception so adroitly as to deceive the attending physician, the clergyman, and indeed the whole neighborhood.] Insane persons often inflict injury upon themselves in order to charge others with the commission of an offence; and cases have occurred where insane persons have admitted themselves to be guilty of crimes committed by others. Hysterical females see visions and dream dreams, that are so vivid that they take them for realities. There is a person at Utica who, a year after he had recovered from his insanity, could not rid himself of the fancies conceived by him when insane. Nervous persons sometimes feign fits in order to obtain medical advice, and when one hysterical person alleges she is affected in a particular manner, another hearing of it, is very apt to be exercised in the same way. Hysterical and nervous women will perform the most marvellous and mysterious things imaginable. They will cut their flesh, and do other things, and with apparent honesty and sincerity, charge their commission upon others.'

In some parts of the world where females make much use of tobacco, hysteria or hysterics, essentially a nerv-

“*Direct Examination.*—When persons make statements at one time that they forget at another time, it is an evidence of a poor memory, or a diseased mind. Hysterical fancies and strange delusions are very likely to occur in young females that menstruate, and it is highly probable that they are themselves deceived. The length of time the patient has been subject to hysterics will make no material difference. When any remarkable occurrence takes place in a neighborhood, and it is much talked over, a nervous female will be apt to dream of it, and after dreaming will mix up facts with what is purely imaginary, and be apparently incapable of separating facts from fancy.’

“If such things are facts—and few men are as competent to judge of matters of this kind as Dr. Brigham—how careful should parents be in the physical training and education of their daughters! Hysteria is a very common affection at the present day. It is a real disease, and should be treated always as such. But hysterical persons generally get little sympathy from friends or enemies. ‘She is only nervous,’ is the common expression, as if *nervousness* were not a disease. ‘Nervousness’ is in fact one of the worst of diseases. Let no one call an hysterical person well. Such a thing cannot be. They are far from it; but we are glad to say the affection is generally curable; perhaps always, when not connected with some other and more formidable disease. Drug-treatment will seldom if ever cure it. Bathing, with suitable dieting, exercise, etc., is the means.

“Hysterical persons should not marry until they are cured. Once cured, the sooner married the better, provided there are no other obstacles in the way. How many miserable wives there are, who are not only miserable themselves, but make their husbands and others about them a vast deal of trouble, in consequence of the diseased state of their nervous system.”—DR. SHEW’S WATER-CURE JOURNAL, July, 1849.

The subject of the following case was much addicted to the use of tobacco, which no doubt helped to cause his difficulty:

“Some weeks since, being at sea in the London packet ship *Switzerland*, Captain Knight, about midway between England and the United States, I was called up one night, having passed into a pleasant sleep, and was told that one of the passengers, a foreigner, had a very bad fit. His sleeping-place was one of confined air. I at once ordered him to be taken and placed on a mattress in the cool fresh air on deck. There was no means by which I could account for his attack at the time. I concluded at once to take, instead of the affusion, the milder and then more convenient mode of giving cold injections. About two quarts of water (fresh), all that could be introduced, were passed into the bowels. This soon brought the patient to his senses. I was told by one of the rude

ous disease, is found to be very prevalent. It is to be observed, however, that as a general fact, those persons who use tobacco, use also the kindred stimulants, tea and coffee, one or both of them, so that these articles, either of which may cause that disease, exert a portion of the effect caused. I know a pious old lady, who would think it a great insult, should any one question her title to being a "good Christian." She uses not only strong tea daily, as often at least as morning, noon, and night, but smokes her pipe even much oftener: and what is the result? She has had for many years hysterics so badly, that every few weeks she gets the notion into her head that she is at the very point of death. She calls her friends about her to advise and admonish them in the most solemn manner. At one of these times, a worthy daughter of hers, who well understood how the devil was misleading her, said, "Come, mother, let us go over to Mrs. —," a neighbor she much loved; "it will be more pleasant for you to die there." Up the old

men in the morning, that the patient was 'love sick.' Afterward it appeared that there was some difficulty between him and one of the officers of the ship concerning the fair one in question, the officer wishing, probably, to amuse himself a little with the foreigner. The matter went on, and in two or three days more the patient had another, and another attack. At length he had one much worse than all the rest—a genuine hysterical fit (for men, as well as women, sometimes have these symptoms). Soon it was difficult to keep him at all within bounds; so I had him 'manned,' as the sailors term it. A number of them took him upon deck, while others drew a half dozen buckets of water and placed alongside. I threw them, one by one, quickly over him, he having only a night dress and drawers upon him. The buckets of water dashed upon him brought him quickly to a better state. He was then wrapped in blankets (it being late in the evening), his wet dress answering as a wet sheet. In this way he was left until morning. He had no more attacks after this. The old remedy, the dash, or affusion, with cold water, is incomparably the best that can be used for hysterics, whether in cases of men or of women."—WATER-CURE JOURNAL, Feb., 1847.

lady jumped, and went quickly, although, as she would have it, she was on the very point of dying. It would be impossible to tell how much of the sins of using tea, coffee, and tobacco, may be excused on the score of ignorance in these old Christians; but certain it is, that since more light has gone abroad on the subject, the younger ones will have much to answer for in these things.

INSANITY.

Tobacco has been ranked among the causes of insanity. On the great principle, that whatever tends seriously to injure the bodily functions, must also necessarily impair in a greater or less degree the mental manifestations, tobacco may undoubtedly be reckoned a cause of mental aberration. If tobacco can produce hypochondriasis and hysteria, as we know it does, certainly we may infer that insanity proper may also be caused by its use. On this head, however, I will merely quote the words of a distinguished authority, Dr. Woodward. He observes: "Tobacco is a powerful narcotic agent, and its use is very deleterious to the nervous system, producing tremors, vertigo, faintness, palpitation of the heart, and other serious diseases. That tobacco certainly produces insanity, I am fully confident. Its influence upon the brain, and nervous system generally, is hardly less than that of alcohol, and, if excessively used, is equally injurious. The young are particularly susceptible to the influence of these narcotics. If a young man becomes intemperate before he is twenty years of age, he rarely lives to thirty. If a young man uses tobacco while the system is greatly susceptible to its influence, he will not be likely to escape injurious effects

that will be developed sooner or later, and both diminish the enjoyment of life and shorten its period. In our experience in this hospital, tobacco in all its forms is injurious to the insane. It increases excitement of the nervous system in many cases, deranges the stomach, and produces vertigo, tremors, and stupor in others."

Dr. Chapman, of Philadelphia, informed his coadjutor, Dr. Wood, as is stated in the United States Dispensatory, "that he has met with several instances of mental disorder closely resembling delirium tremens, which resulted from its abuse, and which subsided in a few days after it had been abandoned."

CHAPTER VI.

EFFECTS OF TOBACCO—(CONTINUED).

"Tobacco impairs the natural taste and relish for food, lessens the appetite, and weakens the powers of the stomach."—DR. J. C. WARREN.

"It is a mistake to suppose that smoking aids digestion. The very uneasiness which it were desirable to remove, is occasioned either by tobacco itself, or by some other means. If tobacco facilitates digestion, how comes it that after laying aside the habitual use of it, most individuals experience an increase of appetite and of digestive energy, and an accumulation of flesh?"—DR. MUSSEY.

EFFECTS OF TOBACCO ON THE TEETH.

THE pernicious effects of tobacco on the teeth are easily proved, although it has been pretended by some that tobacco is a preservative of these useful organs. The delusion grew out of the fact, that tobacco is found sometimes to have the effect of benumbing the nerve of aching teeth. But the teeth of tobacco chewers, who have continued the practice for a considerable length of time, are generally bad, as any one may observe. It was once said in the presence of a clergyman of our acquaintance, that tobacco was good for preserving the teeth, upon which he answered, "That is not true, for on one side my teeth are perfectly good, while on the other side, the one in which I have always kept my cud, there is not a stump left." Query: For what did he use it?

The first and most prominent effect of tobacco upon the teeth is that of softening them. In some instances

they become literally worn to the gums, and in others, decay. The mischief is likewise partly caused by indirect effect upon the masticatory organs through the general health, partly by the natural friction of chewing, and partly by the gritty substances the article contains. I know several old men in the country who have from early youth used freely of tobacco in the mode of chewing, and whose teeth are worn quite to the gums, and yet the fangs or roots of the teeth are, in some instances at least, sound. In some of these cases there is also great tremulousness of the nerves, and extreme emaciation of the whole body. Had these individuals not led a country life, spending a great share of their time in the open air, and actively engaged in the healthful duties of farmers, their condition would have been commensurately the worse.

Concerning the fact that the teeth of tobacco-chewers become worn down by the use of tobacco, Dr. Mussey remarks, "I have observed this in the mouths of some scores of individuals in our own communities, and I have also observed the same thing in the teeth of several men belonging to the Seneca and St. Francois tribes of Indians, who, like most of the other North American tribes, are much addicted to the use of this narcotic. In several instances, when the front teeth of the two jaws have shut close, the surfaces of the grinders in the upper and lower jaw, especially where the quid had been kept, did not touch each other, but exhibited a space between them of one tenth to one sixth of an inch, showing distinctly the effects of the tobacco, more particularly striking upon those parts, to which it had been applied in its most concentrated state."

The injury of tobacco on the teeth then, is, first, by

direct contact of the poison acting on the vitality of the part; second, through the effect of attrition in wearing them down; and third, indirectly by its pernicious effect upon the fluids of the system and the general health.*

The *gums* are, in many cases, made to recede from the teeth by the use of tobacco; and when this effect has once taken place, there is no possible means of making them adhere again. Persons often lose teeth in a perfectly sound state, merely by having the gums become loose about them. Dr. J. C. Warren, of Boston, judiciously observes, "that while tobacco can have no material effect in preserving the bony substance of the teeth, it has a sad influence on their vitality, by impairing the healthy action of the gums."

THE MOUTH.

It cannot be affirmed that tobacco has any specific effect in causing diseases of the mouth, but that it injures this part as any other powerful irritant might do, cannot be questioned. The gums, as well as the tongue and lips, are very subject to that serious and painful affection, cancer. Dr. Warren, before quoted, is as

* Concerning the effects of tobacco on the teeth, Dr. Alcott observes: "But, granting the most which can be claimed for tobacco in the way of preserving teeth—grant that it benumbs the nerves, and thus, in many instances, prevents pain—grant, even, that it occasionally precludes all other decay, except the premature wearing out of which I have spoken—still, the general truth will remain, that it injures the gums and the lining membrane of the mouth, stomach, and alimentary canal generally, and, in fact, of the lungs also; and thus not only prepares the way for various diseases (to be mentioned hereafter), but spoils the beauty, injures the soundness, and hastens the decay of these organs. It was no doubt the intention of the Creator, that the teeth should last as long as their owner. Yet, in how few of a thousand tobacco-chewers, or smokers, or snuff-takers is this the result!"

good authority in surgery as can be referred to. He observes: "For more than twenty years back, I have been in the habit of inquiring of patients, who came to me with cancers of these parts (the gums, tongue, and lips), whether they used tobacco, and if so, whether by chewing or smoking. If they have answered in the negative as to the first question, I can truly say, that, to the best of my belief, such cases of exemption are exceptions to a general rule. When, as is usually the case, one side of the tongue is affected with ulcerated cancer, the tobacco has been habitually retained in contact with this part. The irritation from a cigar, or even from a tobacco pipe, frequently precedes cancers of the lip. The lower lip is more commonly affected by cancer than the upper, in consequence of the irritation produced on this part by acrid substances from the mouth. Among such substances, what is more likely to cause a morbid irritation, terminating in disease, than the frequent application of tobacco juice?"

I believe cancers, severe ulcers, and tumors, in and about the mouth, will be found much more common among men than women. Since the former use tobacco much more generally than the latter, may not this be a cause?

THE TASTE.

That tobacco injures the taste—I mean in a physiological sense—is almost too notorious to need mention. Those especially who chew are injured in this respect. Every one must have observed the dull and almost obliterated taste of the tobacco-chewer. Plain and wholesome food is utterly insipid to him. He must have every thing seasoned in the highest manner, and even

then he often wonders that the food is so insipid. Luscious fruits, which are so pleasant to the undepraved palate, the tobacco-chewer loses all relish for, and often entirely abandons their use. And the worst part of this whole matter is, that tobacco, by blunting the keen sensibilities of the parts concerned, leads men to an almost ungovernable desire for strong drink. And there is another evil, which is, that when inebriates, who have been users of tobacco, reform, they practice still greater excess in the use of the abominable weed, to answer in some degree the cravings for alcoholic stimulus. The bad habit of using tobacco, then, works evil in two ways: first, to cause the individual to desire a stronger stimulus; and, second, when the stronger stimulus is discontinued, to take more and more of the tobacco, in order as far as may be to make up for that stimulus.*

* Dr. Adam Clarke remarked, that "so inseparable an attendant is drinking on smoking, that in some places the same word expresses both: thus *peend*, in the Bengalee language, signifies to *drink* and to *smoke*." "It is with pain of heart that I am obliged to say that I have known several who, through their immoderate attachment to the pipe, have become mere sots." Governor Sullivan said, "that the tobacco pipe excites a demand for an extraordinary quantity of some beverage to supply the waste of glandular secretion, in proportion to the expense of saliva; and ardent spirits are the common substitutes; and the smoker is often reduced to a state of dram-drinking, and finishes his life as a sot." And the learned and sagacious Dr. Rush remarked, "that smoking and chewing tobacco, by rendering water and other simple liquors insipid to the taste, dispose very much to the stronger stimulus of ardent spirits," and that "hence the practice of smoking cigars has been followed by the use of brandy and water as a common drink." Also some years ago a writer in the *Genius of Temperance* (American) said that his practice of smoking and chewing tobacco "produced a continual thirst for stimulating drinks;" and that this tormenting thirst "led him into the habit of drinking ale, porter, brandy, and other kinds of spirit, even to the extent, at times, of partial intoxication;" and then he added, "I have reformed; and after I had subdued this appetite for tobacco, I lost all desire for stimulating drinks."

The inhabitants of Northern Siberia, male and female, we are told

THE VOICE.

Public speakers not unfrequently make a liberal use of tobacco, sometimes by smoking, sometimes by chewing, and sometimes by both. Some clergymen find themselves unable to preach unless the pipe or quid has been resorted to just before commencing the pulpit exercises. If they do not, a troublesome dryness of the mouth and throat is experienced. That these individuals are sincere in their belief concerning the good effects of tobacco in their cases, there can be no doubt. They are as honest as the old women are, who cure their tea-headaches with an extra "good strong cup," when they assert that tea is one of the best things in the world to cure headache with; and the latter are not more mistaken than the former. This dryness and parched condition of the throat, are of themselves symptoms of a diseased condition of the part. At first, the habit of using tobacco was commenced foolishly, or perhaps by the advice of some physician, who knew no more of the true science of healing than the man who put the cart before the horse. Why cannot these would-be wise men of the profession, who have so often recommended tobacco for difficulties of the throat, remember,

swallow the smoke of tobacco for the purpose of bringing on a stupefaction, as pleasurable as that of drunkenness to the spirit-drinker. But this is what the good and Christian lovers of tobacco would call the intemperate use of the delectable weed—the good thing God has given with which to soothe the heart. But as in the case of spirit-drinking, it would, we think, be a somewhat puzzling question in the science of morality to determine precisely how many quids, how many pipes full, how many "pinches," and how many cigars, in short, what precise quantity would in any given case come under the head of *Christian moderation*.

The senses of *sight, smell, and hearing*, are also injured by the use of tobacco.

that the constant and habitual use of any medicine, however good, will, with indubitable certainty, wear itself out ; and that the effects which at first appeared to be good, become ultimately, in all cases of long-continued use, bad. This axiom, be it remembered, holds good in the use of all drugs. What were at first the symptoms of cure, become, by long-continued use, the symptoms of disease.

There are cases in which this tendency to dryness of the throat in public speaking would, without the use of tobacco, become so severe and the hoarseness so great, that it would be very difficult to proceed in the exercise. However, if persons will persevere, and rid themselves wholly of the noxious drug, they will find that within a reasonable time, a few weeks, or at most, months, the unpleasant symptoms will pass off. Especially will this hold true, if at the same time other hygienic means be used to invigorate the general system and its local parts ; such as exercise daily in the open air, bathing, tepid, cool, or cold, according to the season of the year and the individual's strength ; washing and rubbing well the throat frequently with the hand wet in cold water, gargling with the same, and the use of water as the only drink ; these and the like means, in connection with complete and entire abstinence from tobacco, are the natural and best means that can be resorted to in such cases.

It will be inferred, then, from these remarks, that tobacco, like tea, coffee, and all stimulants that tend to inflame the fauces, throat, and other parts concerned in speech, is injurious to the voice.

Since writing the above paragraphs, I find in an excellent article on tobacco in the London Medical Gazette, published some months ago, by Dr. Thomas Lay-

cock, the following judicious observations : "The first and simplest morbid result of excessive smoking, is an inflammatory condition of the mucous membrane of the lip and tongue, and this sometimes ends in the separation of the epithelium. Then the tonsils and pharynx (upper part of the throat) suffer, the mucous membrane becoming dry and congested. If the throat be examined, it will be observed to be slightly swollen, with congested veins meandering over the surface, and here and there a streak of mucus. The inflammatory action also extends upward into the posterior nares (openings to the nostrils), and the smoker feels from time to time, a discharge of mucus from the upper part of the pharynx, in consequence of the secretion from the mucous membrane of the nares collecting within them. The irritation will also pass to the conjunctiva (and I am inclined to think from the nares, and not by the direct application of smoke to the eye), and the results are heat, slight redness, lachrymation (running of tears), and a peculiar spasmodic action of the orbicularis muscle of the eye experienced, together with an intolerance of light on awakening in the morning."

"Tobacco, when used in the form of snuff," says Dr. Rush,* "seldom fails of impairing the voice, by obstructing the air." "The truth of this remark, though made about half a century ago, we see verified in the case of thousands of public speakers. It is not the snuff-taker alone, however, who injures his voice by tobacco, though the injury which he sustains may be most im-

* It is, I presume, generally known that Dr. Rush gave perhaps more attention to investigations concerning the human voice than any other physician who has ever lived. His writings on this subject are probably the best extant.

mediate and severe. By the dryness of the nasal membrane, which chewing and smoking produce, these vile habits have a similar effect. The smoke of the tobacco contains many fine particles of the weed itself, which lodge in the passages. Who does not know how soon smoke of any kind, especially tobacco smoke, will darken or blacken a white surface? Yet, how could it darken it, except by depositing its fine dust upon it? And is the lining membrane of the nasal passages less likely to receive the dark, filthy, poisonous deposit than any other surface? Do we wonder, then, why the voice should be affected, when the hollow nasal cavities are converted into so many sooty flues of a sooty chimney?"*

THE THROAT.

It must be evident that any agent which is known to cause serious diseases of the gums and mouth, and to impair materially the voice, must also be detrimental to the throat. Beyond doubt, chronic throat disease, which is so prevalent at this day, is often caused in great part, by the use of tobacco. This arises not from any specific nature of the drug, but first, from its effects on the mouth and throat locally, second and mainly, from its pernicious effects on the general health.

Dr. Alcott.

CHAPTER VII.

EFFECTS OF TOBACCO—(CONTINUED).

"Tobacco, even when used in moderation, may cause dyspepsia, headache, tremors, and vertigo."—DR. RUSH.

"Who can see groups of boys of six or eight years old in our streets smoking cigars, without anticipating such a depreciation of our posterity in health and character as can scarcely be contemplated, even at this distance, without pain and horror?"—DR. RUSH.

CONSUMPTION.

IN reference to the effects of tobacco on the respiratory organs, it becomes a question of great importance whether it has any effect in causing that dreadful disease, consumption; a malady that has become so common in the United States as to be termed the *American* disease; a malady which, when firmly seated upon the individual, can rarely, if ever, be cured. Our country is becoming more and more settled, and should therefore, other things being equal, become also more healthy. There are, doubtless, many causes to be taken into account, in order to arrive at accurate results in this matter. There can, however, be no doubt, that within the last fourth of a century this disease has increased in the United States. Since railroads, canals, steamboats, ships, and other means of conveying the so-called luxuries of life from the different parts of the world to almost every nook and corner of our wide country, have been so much improved, the dietetic and other hygienic habits of our

people have become much changed. Thus it is doubtless in part, that consumption has, within that time, become more frightful in its ravages than when a state of greater simplicity obtained.

As to the use of tobacco, I am well aware it will be objected that females, who in our country seldom use the article, are yet very subject to consumption. The disease, too, is hereditary in a large proportion of cases. In that case, the effect of unfriendly agents would be only the more rapidly to develop the disease. There being no public registry of births and deaths in most parts of the United States, it would be difficult to form an opinion as to whether males or females suffer most from this disease.

But it cannot be doubted that tobacco has an influence in many cases, in causing and developing consumption. While the narcotic effect of the plant is exerted on the nervous system, we know that inflammation and ulceration of the throat is often found in cases of those who smoke freely. A short, hacking cough is also to be observed, attended sometimes with the bringing up dark, grumous blood. That the inhalation of so deleterious an agent as tobacco smoke into the delicate tissues of the lungs must be injurious to those organs, I think few will question. On the whole, no important part of the system is so liable to disease as that delicate structure, the lungs. I have known of some cases, and heard of numbers of others, in which tobacco has been at least a prominent cause in developing consumption. This has been proved true from the fact, that on discontinuing the use of the drug, a great amelioration of the symptoms has taken place, and in some cases a complete cure has been thus effected.

It will be understood, then, I do not affirm that tobacco is the principal cause of the fearful ravages of consumption in our country. The causes are many and complex, and need deep study and investigation to enable us to arrive at accuracy of results. Could we know the whole truth in the matter, we should doubtless find that, besides a variety of debilitating habits, the use of stimulants and narcotics, such as wine, spirits, tea, coffee, and tobacco, have had much to do in causing and developing this most stealthy and insidious disease.

Any agent whatever that poisons the system, however gradually, may cause ulceration and destruction of the lungs ; and this is more especially true in those cases where the poison is actually inhaled into the innumerable cavities of these very important organs of the human fabric.*

PALPITATION OF THE HEART.

A nervous palpitation of the heart is often caused by the use of tobacco. This effect may be produced either by the action of the narcotic on the nervous system, or indirectly through its effect upon the stomach, which, in certain diseased states, acts by sympathy on the heart, producing the palpitation. I am certain that any physician who will carefully observe a sufficient number of cases of palpitation, will find that I am correct in this position. Many a man has been treated a long time

* After writing the above paragraphs, I noticed that Dr Alcott, in his excellent little work on tobacco, quotes a case from the great Dr. Rush—*Father Rush*, as the greatest medical men of our country are pleased to call him—wherein he says : “ I once lost a young man, seventeen years of age, of a pulmonary consumption, whose disorder was brought on by the intemperate use of cigars.”

for what was termed a *heart disease*, and without any good effect whatever. In many of these cases, the great and most important thing necessary has been *to abstain from all use of tobacco*. But here I must observe, also, that the use of strong tea and coffee very often produces the same results ; so that, if the disease had been caused principally by tobacco at first, and if this were discontinued, and not the former articles, the user of tobacco would, in many instances, fail of obtaining a cure. Avoid tobacco, tea, and coffee—in short, all narcotics—this is the rule ; a practice which, followed faithfully and perseveringly, will in every case be attended with the best possible results.

DIFFICULTY OF BREATHING.

The use of tobacco, besides tending to cause and develop consumption, has sometimes the effect of impairing the function of respiration. I think any one who will observe closely, and notice those persons who have been addicted to smoking for fifteen or twenty years, and in many cases a less time, will perceive that the respiratory function does not go on as perfectly as it ought. There is a kind of *wheeziness* of the breathing ; the man is *short-winded*, so to say. I have seen, in numbers of instances, this difficulty exhibited in a remarkable degree. A great smoker is never a great pedestrian.

There is also the sudden starting and choking sensation, with a feeling of weight and great oppression about the heart, with, at the same time, an extreme difficulty in taking in the breath. That tobacco is the principal cause of these difficulties has been proved, as when the article is discontinued the symptoms soon vanish.

It is to be observed, however, in this connection, that both tea and coffee used in excess, do in some cases cause these last-mentioned nervous symptoms of breathing and oppression about the heart. Any narcotic, persevered in, may bring about these results. It is the effect of the poison upon the nervous system generally in these cases, and not of so local a character as in the inhalation of the smoke of tobacco into the lungs.

A case is quoted by the Rev. Mr. Lane, in *Mysteries of Tobacco*, from Dr. Clarke, as follows: "A person of my acquaintance who had been an immoderate snuff-taker for upward of forty years, was frequently afflicted with a sudden suppression of breathing, occasioned by a paralytic state of the muscles, which serve for respiration. The only relief she got in such cases was from a cup of cold water poured down her throat. This became so necessary to her, that she could never venture to attend even a place of public worship without having a small vessel of water with her, and a friend at hand to administer it! At last she abandoned the snuff-box; the muscles reacquired their proper tone, and in a short time after she was entirely cured of her disorder, which was occasioned solely by her attachment to her snuff-box, and to which she had nearly fallen a victim."

INDIGESTION. .

In the country parts of the United States, we often find persons who tell us it is absolutely necessary for them to use tobacco. They were in the habit of "*spitting up their food*," for which the doctor told them to commence the habit. The oracle of the doctor is the veriest law and gospel whenever it agrees with the

propensities of patients. But I have known some well-meaning, pious people brought into the habit in this way, and once it is fixed upon them, not one of a hundred has the power to leave it off. That there is such an effect of tobacco in certain cases of indigestion (spitting up food), there is no doubt. It happens in this wise: the stomach has been worried and goaded habitually with too much and improper kinds of aliment; perhaps the brain has been for a long time subjected to too much excitement, which is always visited to a greater or less extent upon the stomach: a severe attack of sickness with imprudent dosing, or perhaps by dosing in a smaller and more continued way, the stomach has become so weak that often a part of the food is rejected.

Now in such cases the symptom is a good one rather than otherwise. If too much is given for the weak and debilitated stomach to do, it is better if it have power to eject a part of its load. It can then go on more favorably in the fulfillment of its difficult task. But if the tobacco is taken, the organ is stupefied into the submission of retaining its load. Thus the very symptom which patient and physician are combatting in such a case is a good one, and ought not to be interfered with, except that less food should be taken. But such advice physicians know too well is never obeyed, nor are people apt to pay for a thing so simple as that. Hence it is that physicians often find it necessary to advise differently from that which would be in reality the best.

As to the symptom in question, I say, unhesitatingly, it is better not to interfere with it by administering drugs; and especially with one that fixes a habit so strong and ungovernable upon the system as the use of tobacco. Use the natural means of invigorating the

whole system, and thus the weak part will become strengthened. By no other means can it be. It is easy to give stimulants which will delude the individual for the time, but harm is the only and inevitable result from such practice; and in no case should the stomach be given too much to do.

Among the great and almost innumerable family of symptoms belonging to indigestion, there is none that may not be caused by tobacco. Spitting up food, pain in the stomach, acidity, heart-burn, loss of appetite, disrelish for all simple articles of food and drink, eructations, flatulency, constipation, constipation alternating with diarrhœa, palpitation, tremulousness, fullness in the head, giddiness, stupor, depression of spirits, weakness of the eyes, wasting of the flesh (but in some cases the opposite extreme), derangement of the liver, pallor of the countenance and sallowness—such are some among the multitude of symptoms that are known to be caused by the use of this detestable drug.

CONSTIPATION.

Some persons who suffer from constipation smoke in the morning for the purpose of causing the bowels to act. The cathartic effect of tobacco is one of its prominent results when taken in considerable quantity. And it is also true, that with many persons in whom there is a tendency to torpor of the bowels, the smoking a cigar will bring about this result. Whether the effect be a good one, let us inquire.

How does a cathartic or aperient substance act thus to cause the peristaltic motion of the colon or lower bowel? By its action, indirectly, as an undue and un-

natural stimulant to the part. This is the case with all such substances, and who does not know that the habitual use of any article of the kind never cures the difficulty—only in the end makes it worse. Look at the immense amount of pill-taking in the United States, the most pill-gullible and pill-accursed country on the face of the earth. What an amount of mischief is thus done the health, *by keeping up a mode of drugging the system for evils which the drug appeared at first to remedy!* Pills never yet cured a case of constipation, and never can; the same also is true of tobacco. Hence the same causes may produce apparently opposite results.*

REDUCING THE FLESH.

Tobacco has a tendency generally to reduce the flesh; so much so that many persons are made too lean by its use. There is not only leanness, and the usual symptoms of dyspepsia, but a dark, unhealthy sallowness of the complexion. On the other hand, we sometimes, though not often, find very fat persons who use liberally of the weed. That state of the system is also one of disease.

* In those cases where it becomes necessary to devise means of counteracting the too great tendency to fleshiness, there are much better means that may be resorted to, better and more effectual than tobacco would be, even if it exerted no ill effect upon the system. Let persons use pure soft water as the sole drink; practice daily bathing, exercise in the open air, and adopt a diet regulated upon physiological principles, such as brown bread, potatoes, fruit, milk, and water. Then there will not be too much flesh. And such means, moreover, while they are the most effectual for accomplishing the desired object, are at the same time peculiarly favorable in promoting the health, strength, and permanent well-being of the whole system. It is not so with the tobacco processes, vinegar-drinking, and things of the like kind.

APPENDIX.

ESSAY ON TOBACCO—ITS NATURE, USE, AND INFLUENCE ON HEALTH.

BY JOHN BURDELL, DENTIST.

“AND God made every plant of the field, before it was in the earth, and every herb of the field before it grew; for he had not caused it to rain upon the earth. And God saw every thing that he had made, and behold it was very good.” Each link in the chain of vegetable creation is good and perfect in itself—there being no two links alike in every particular. If it were not so, we might say he had created some things in vain; but the scientific ingenuity of man has not as yet been able to detect any deviation in making the chain, and all of its parts are perfect and complete in themselves: if so, it would not be consistent to say a production of nature is good for nothing; if we do, we shall only expose our ignorance.

The tobacco plant is good in its place, among the herbs of the field, for sustaining animal life, as well as every vegetable production of the earth. God says, “I have given you every green herb for meat, and it was so”—to continue until the end of time. Nourishment may be received from an herb in its green state—while the same herb, when ripe and dry, may not only be unnutritious, but unwholesome to the same creature. We know that certain animals will eat the green plant and grow fat; but will die while surrounded with it in the ripe and dry state.

Let it be understood that herbs were made before animals or eaters, to consume nature's products. Some were made more adapted to one class of products than to others. For this reason

we see many animals on the same farm, and all feeding without trespassing on each other's rights.

An illustration: The cow has an inclination for grass; the goat for leaves, and bark of trees; the squirrel for nuts; the hen for grasshoppers, and various insects; the hog and crow to consume dead carcasses; the cat to devour the rats and mice; the woodpecker to examine the bark of trees, and pick out the grubs; the robin to eat the cherries; and many others, together with man, may live on the same farm, without interfering with each other's instincts.

Let it be understood that the inclination for food is the first, strongest, and most natural desire of all animal creation; then let man be careful that he does not attempt to change the order and arrangements of the Deity. The mouths of all animals are made as instruments for receiving food and making a noise, and for no other purpose. The roots of trees and plants also serve as channels through which they receive nourishment and standing in the earth.

The nostrils of animals are designed for breathing and detecting the quality of the atmosphere and aliment.

Let it be remembered that the mouth is designed to receive substances and not to pass them back again; together with the secretions, they are designed to go toward the stomach, their natural reservoir. All of the lower animals and idiots instinctively obey this rule, as will be seen more fully in my notes to the life of Louis Cornaro.

Then we see that it requires mind and education to *change* the natural laws of instinct, which are given to direct the choice, or original demands from the various productions of the earth. Every animal derives its support, directly or indirectly, from vegetable matter. In some cases it goes through several changes before it is adapted to nourish them.

For illustration: The tobacco-worm feeds on the tobacco plant; the turkey on the worm; man artificially on the turkey, and the purely carnivorous on the two latter. In this way it will be readily seen how the carnivora depend on the herbivora, and the herbivora on that which is produced directly from the earth.

Let it be understood that no creature, when all the organs are performing their natural offices, will either spit or throw off the secretions of the mouth. Therefore we find whatever will produce this habit, will have a tendency to deprave and prostitute their

office, which will lead to a premature cessation of the vital principle.*

The Apostle says, "There should be no schism in the body; but that the members should have the same care one of another; whether one member suffer, all the members suffer with it." Whenever God warns, he sees danger *ahead*, and puts up a guide-board for those who are capable of understanding it, and for no others.

Tobacco destroys the exquisite flavor of taste and smell; pulls down the guide-board, and gives loose to the passions which lead into the company of the blind; both are liable to "fall into the ditch." If the glands of the mouth are treated in an unlawful manner, the stomach and other parts will crave the same in order to *vic* with its rivals.

Every individual admits that there is, or ought to be, a place for every thing, and every thing in its place. Art demands art; change calls for change, while nature calls for nature. The instinct of the child, as soon as born, seeks its mother's milk; and so it is with all the mammiferous tribes. As it advances in strength, the milk gradually ceases, and other forms of food, equally congenial to nature, are ready for them; and all that is necessary is, to make suitable exertion to supply their real wants: but whenever the above is changed to a less congenial course, and art is substituted for nature, our imaginary wants are seldom satisfied. Artificial preparations of food and drink, compounded of good and bad substances, always destroy in a measure the natural instinct; affecting the whole alimentary canal, and especially the stomach, which sometimes requires emetics to send back what instinct would not have taken, without first having been bribed. For this purpose, tobacco has been found to be a good agent for the transgressor, whose way is always hard in the end.

* We see that the horse, after eating grass mixed with lobelia and other unwholesome substances of this nature, will slobber or dreul from the mouth, whenever the salivary glands are unduly stimulated or relaxed, together with idiots, infants, and all animal creation which have not judgment enough to spit.

Tobacco-chewers, in old age (or what is called second childhood), let the secretions flow down on their beards and dress, as many can bring to recollection.

Then in every case where spitting or dreuling is found to exist, there exists, also, an unnatural state of the creature. If we see a dog dreuling or frothing at the mouth, it strikes us with terror. Why so? Because we fear it is mad or rabid. Some may attempt to stop the discharge, without removing the cause; (let such remember that the system is merely trying to relieve itself from that which can do it no good;) if successful, death in many cases is the result. Counterfeit money is better out of the pocket than in it

Farmers who neglect their calves, and permit them to get lousy, will tell you that a decoction of tobacco is good to sprinkle along the back, to destroy the vermin; but care should be observed in not using it too freely, for if so, it will destroy the calf also.

Parents, whose children are troubled with worms, sometimes find it good to make a poultice of tobacco, and bind it on the abdomen, for expelling them. It is used on bedsteads, carpets, etc., to keep off certain intruders. It is used for injections to relax the system. Many take it for relieving and blunting an acute or accusing conscience, "whose waters cannot rest" without an antidote.

The question has been frequently asked, Does or does not the use of tobacco prevent the teeth from decaying? To those who wish to know the truth, I would say, All the organs of the body were originally made to harmonize with each other; and no one of them was intended to fail until nature's plan was fully carried out.

All the organs were made to perform their respective duties, under certain regulations, as stated in my work on teeth.*

As long as we require food, we require teeth to chew and prepare it for the stomach; then, if the physical laws have not been violated, the use of tobacco would not in any way benefit the teeth.

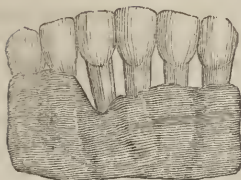
Some contend that smoking preserves the teeth from decomposition; and assert, as a reason, that hams smoked, will be preserved longer than without its agency; but whoever should attempt to smoke their hogs while living, would be liable to be taken up and sent to the lunatic asylum.

If an individual, who is governed by his feelings, be placed where tempting and artificial preparations of food are constantly before him, chewing will not only lessen his appetite, but also prevent him from eating as often, especially when he has the *sweet* morsel in his mouth; in this his teeth may be benefited; that is, it is possible for tobacco to take the place of still greater evils.

Those who use tobacco, throw off the fluid designed for the stomach; consequently thirst is the result. Such persons will crave something stimulating, which will generally be indulged in, to the destruction of the healthy functions of the system.

I have found much more difficulty in fitting artificial teeth in the mouths of tobacco-chewers than others, owing to the irritable and tender state of the gums. Tobacco causes the gums to recede from the teeth, consequently loosening them.

* The Teeth—their Structure, Diseases, and Treatment, with numerous Illustrative Engravings. Fowlers & Wells, New York.



SIX FRONT TEETH.

This cut represents six front lower teeth. You will see a part of the roots of four, which were once covered with the gum, and held firm by the jaw, but have now lost their natural and former protector, while the teeth themselves are free from decay. Those who are affected thus may attempt to restore the parts lost, but it will be like raising the dead.

What is the foot or hand good for, without a body capable of directing them? Teeth without gums are good for nothing.

Every healthy organ is the best off in its own element. That which is good for the mouth is also good for the stomach; but that which has been acted on by the stomach is only good for the next organ below.

All living bodies are designed to undergo change, from birth to death, and finally resolve themselves back into the elements from which they were formed.

Suppose mankind should set themselves at work to preserve every thing from change, as far as they can, by using tobacco and various kinds of drugs, alcohol, salt, vinegar, or any other preserving substance. This would only make things worse.

Whatever will preserve food from decomposition out of the stomach, will in the same proportion hinder it from being digested while in the stomach.

For this reason, it will be seen that salt provisions call for water, in order to wash out the salt, before digestion can go on.

If the saliva is impregnated with smoke, and swallowed, it will only have a tendency to preserve from digestion whatever food it comes in contact with; so that persons who wish to make this receptacle a preserving pot, cannot do better than to send faithful and tried agents there for that purpose.

No animal or vegetable can receive nourishment without change or decomposition. Then all organized matter, after it has fulfilled its office, returns to its original element.

Suppose you put your cucumbers, while growing, and still con-

nected with the vine, in vinegar to the stem; they will be preserved, and also prevented from growing; but would this be right, if universally followed? No; every thing is commanded to "bring forth after its kind." Therefore, by obeying the former, you might preserve the cucumber, but would cut off the propagating law, which would sooner or later extinguish the vegetable kingdom, and thereby destroy the animal.

Then let us not try to embalm ourselves, or others, while living, with tobacco or any other drug.

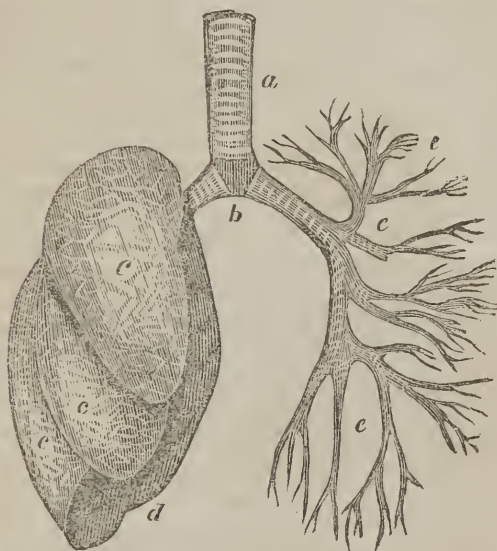


HUMAN BODY.

EXPLANATION OF THE PLATE.

E represents the tongue; *u* the palate; P and *u* is the air-passage between the wind-pipe and nose; *e*, epiglottis, or lid, which the food shuts over the mouth of the wind-pipe when swallowing, to prevent it from going the wrong way; but when vomiting, it opens, and sometimes lets the food into the breathing pipe, which shows that the food of man was designed to pass down, and not up; A represents the pipe leading to the lungs; B shows the passage leading to the stomach, with the upper portion open to show the inside; D shows the diaphragm, which separates the chest from the bowels; C shows the position of the stomach. The stomach is the organ of digestion; or, to make it more plain, as the boiler is to the steam engine, so is the stomach to the body. Stop the action of it, and life would soon fail for want of supplies. The stomach exists—what cannot be affirmed of any other organ—in all animals, without exception; and if the importance of the parts may be estimated in this way, it evidently holds the first rank among our organs. Food ought not to be received into it in less than six hours after the last meal. Eat to live, and not live to eat, smoke, snuff, or chew, to gratify the lower or animal propensities, at the expense of the intellectual faculties.

It will be seen in this plate that smoke and snuff, taken into the mouth or nose, will impregnate more directly the wind-pipe and lungs, while chewing will affect them less, especially those who have large nostrils, and keep the mouth shut; but if the juice is swallowed, it will affect the stomach and intestines. What is it that the lungs call for, except pure atmosphere, which has no smell, neither can it be detected by the unsullied instincts of our nature? Hence all combinations or scents are deleterious, and unfit for those delicate air-cells which serve as instruments for arterializing the blood.



SHAPE AND STRUCTURE OF THE LUNGS.

a, the trachea, or wind-pipe; *b*, its branch to the right and left lung; *c c c*, the three lobes which compose each lung; *e e e*, the air-cells of the lungs dissected; *d*, the pulmonary arteries, or entrance and egress of the blood from and to the heart.

If the avenues through which the lungs are supplied are lined or impregnated with that which is disagreeable to the pure instincts, then the poor and down trodden must bear the reproach in silence: but if the lungs could speak, what do you think they would say?

By the law of action, or change, all organized bodies are built up

and thrown down. A cessation of action produces incorruptibility, while it is held in check by any cause, and the vital principle in many of them still exists.

Various plants and trees may be taken to regions of perpetual snow and ice, and remain in a frozen state for any length of time; but when they are removed to their former situation, they bud and blossom as before, and still appear as young trees. Age is not counted, nor is it perceptible without action. Some of the cold-blooded animals may be kept in a torpid or frozen state for years, and as soon as the temperature will admit the fluids to act again, they will assume their former habits, and to all appearance seem as one waking out of sleep.

Large and extinct animals have been found in the frozen regions, in a state of freshness which would appear to the eye to have been dead but a few days; still, they must have remained in the above state, as some suppose, since the flood.

Wheat, encased with Egyptian mummies, has been preserved for three thousand years, and readily grew after being deposited in the earth.

By the law of repose, or sleep, the bodily powers are recruited for action, while all undue or over stimulation injures or draws on the original stock and only power we have.

If you have three hundred and sixty-five dollars in the bank, and can put no more there, but still are obliged to draw a certain amount each day for sustaining the body in the best condition, and have the power to overdraw that amount, the time you will have an account there, will depend on the amount of your checks.

The flesh and exhalations of animals will partake of the nature, taste, and smell of substances taken into the body through the mouth and nostrils.

Cows which partake of leeks, onions, etc., will emit a smell so disagreeable that other cows from a pasture of pure clover, and inclosed in a yard together, as is frequently the case, will get their heads as far as possible from the others, and in a direction from which the wind blows. Is this the effect of the reasoning faculties, or do they go round and round the yard, because they feel uneasy, and stop at the place where they find the most comfort? The answer is left to the phrenologist and naturalist to solve.

Wild ducks are frequently rejected by human beings, because they taste so *fishy*, being impregnated with the fish they have eaten.

Our observing Yankee soldiers on the Mexican field of battle will

tel you, that of those who fell, and were left on the ground to be devoured by the wolves, those who were saturated with tobacco, garlic, etc., were *left* until the more pure were consumed. If their instincts had been partially destroyed, would they have been so particular? Why are signs put up in our steamboats, hotels, and public resorts—"No smoking allowed in this cabin?" If human instincts had not been perverted, we should not have seen such signs to guard the smellers against contraband goods from going into port.

Effects always follow causes, although we may not be able to trace the direct cause; but we know it goes before in every case. Then pain or penalty is the receipt, showing the previous amount of *work done*.

The command is, "To bring forth after your kind," or form. Then whenever the parents are defective in their organization, or any of their members wanting, or abused by over-action, or want of action, the offspring will be in danger of the sins or transgressions of the parents.

For instance: my own child has three upper incisor front teeth; I have four, the mother two.

Consumptive parents are liable to have delicate and consumptive children.

Tobacco consumers sometimes have the question asked by their little ones, "Father, if it is good for you, is it not good for me?" The parent may hesitate and swallow two or three times, before a direct answer is given.

The descendants of the Ethiopians who have eaten the cocoa-nut for generations in their own land, are more fond of it in this country than the Europeans, although they never saw or heard of it until they tasted the fruit in our market.

Take from the wilderness an Indian infant, whose ancestors have followed the chase, and bring him up with our children near the forest; the Indian will wander off in quest of game, while the farmer's boy will take pride in cultivating the ground.

The offspring of drunkards, gluttons, thieves, murderers, whore-mongers, etc., will find it more easy and congenial to their feelings to follow the tracks of their parents, than to mark out better paths to tread in.

All animals which were designed to live in the light, have eyes. All fish originally have eyes; but if they are placed where the sun and moon can give no light to them, their eyes will not be used;

consequently, their immediate offspring will have smaller and weaker eyes. This process will continue from generation to generation, until they will be hatched without eyes. I have one in this condition preserved in spirits, which was taken from a pool of water in the mammoth and dark cave of Kentucky.

Cut off the tails of your dogs for a few generations, and by-and-by you will be saved the trouble, for there will be no tails to cut.

Take a pup from the blood-hound, and another from the grey hound; the first will follow the track of its prey by *scent*, even if it take a circuitous course; while the other will follow by sight, and cut across lots, if necessary. Why is this difference? says one. Another answers: Because their parents had used one organ, and neglected another.

Animals in a wild or rude state have great uniformity of color, features, etc.; but after their natural condition is changed by domestication, it produces such a modification in their appearance as to almost deceive the critical observer. This has led many to doubt a common parent of the human family.

There is a rule which will determine between species and species, in all animal creation; that is, different species will not continue to propagate from generation to generation, while variety, or those which had a common parent, will do so. This, I think, will settle the point without further investigation.

We see that wild turkeys are nearly of one uniform color; but after being domesticated, they become of various colors. So it is with wild pigeons, ducks, cats, and all domesticated animals; but the greatest contrast and variety are found among dogs, which have received the greatest attention from man.

We see that cows in general have horns, and also a certain breed or variety have no horns; but does this prove that the original stock were made without horns? New organs are never added; but, on the contrary, are taken away by various causes.

All of the female mammiferous family were originally designed to produce sufficient milk to sustain their young, and no more; but we know that some cows will give much more milk than the calf requires. Why is this? The farmer says because it is of a good breed. The fact is, that for generations, certain glands had been more stimulated by artificial means than *nature* designed for supplying its young.

We also observe that nearly all the rude tribes of the human

family have black hair ; but after artificial and unnatural habits are substituted, instead of the original, the hair in many cases is changed to what you see it in this community.

Idiots are frequently the product of breeding *in* and *in*, as the naturalists call it. Lap or poodle dogs are of such parentage, and many other degenerate animals, which become so weak and inferior, both in body and mind, that they are unable to make their way through life without assistance from others. Relatives will bear this in mind before they make certain engagements in order to keep wealth or royal blood in the family.

From the above facts and considerations, it will appear evident, I think, that the use of so pernicious a drug as tobacco, must bring many evils, not only upon parents, but their children, and children's children, and so onward to succeeding generations. And what must be the effect, when not only parents, but their *children*, from generation to generation, continue the habit ?

We have strong reasons to believe that life never originates of itself, but began at the creation, and is communicated to assimilated matter, and propagated from parent to offspring.

Motion or action is either *involuntary* or *voluntary*. Involuntary motion always begins first, and is the last to fail, and is not under the control of the intellect or will.

The heart first beats, and we breathe before we are sensible of it. This must continue day and night without cessation, until the sleep of death shuts the gate.

Voluntary motion is under the control of the will, and needs rest and sleep in proportion to its action. Every thing which will have a tendency to disturb or stop these motions, will abridge the period of our existence.

Knowledge gives power into the hands of man, and in proportion as he has it, he is able to subdue and destroy, not only the inferior animals, but his own species, and himself also.

All excitants and stimulants beyond certain limits have a tendency to deceive, and lead into error, which causes us to think all men look through our spectacles. One person takes a little wine to cheer him up ; another a cup of tea to cure the headache, not realizing that, as long as he does it, he has a headache to cure ; another will take a little opium to quiet or destroy the sensibility of his nerves ; another takes tobacco to procure the good feelings it causes.

To show, then, the more specific effects of tobacco on animal life, I will give the following facts:

I took common tobacco, and soaked it in water about the temperature of the blood, and after procuring a number of frogs, applied a portion of the juice where the hind legs are connected with the body, as will be seen in the drawing. The first leaps were violent

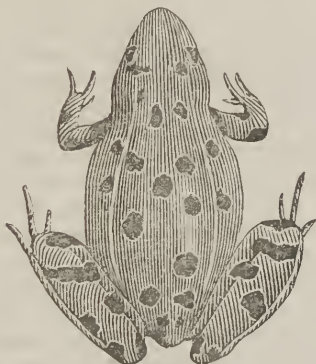


A FROG IN A LIFELESS STATE.

and two or three feet in length; but the succeeding leaps grew shorter and shorter until the muscles became so weak that the animal was unable to draw the legs up to jump again. They remained in the position you see them in the above engraving, until signs

of life were invisible, though I supposed it would recover after a time; but on the third day it began to decompose.

The others had it applied on the back and legs, and in less than half an hour life was not perceptible. Those which had it applied in the mouth, vomited, and soon died. It was tried on mice with similar results.



A FROG IN A NATURAL STATE.

You will see the frog in its natural state and position, as represented in the engraving above, and enjoying the pleasures of its animal existence, and in less than an hour, all of its powers asleep.*

Mothers sometimes give opium or paregoric to their children, to mitigate pain, and make them sleep. Parents frequently take it for the same purpose, but if the dose be too large, they will sleep the sleep of death; and in fact, many have taken it for this purpose, in order to get out of trouble.

A poor farmer (as related to me recently), with but one cow and horse, found them troubled with lice. A benevolent friend gave him a bottle of the juice of tobacco, as he had heard that it would

* Sleep is rest, or cessation of voluntary or involuntary motion. Those who wish to put themselves into this state by artificial means, will call things good according to their lulling or soothing effects on the vital powers of the body, until they cease to exist, or sleep, as represented in the Scriptures. "David slept with his fathers, and was buried." In Daniel it says: "Many of them that sleep in the dust of the earth, shall awake, some to everlasting life, and some to shame and everlasting contempt." The wicked or transgressors love death or sleep better than life, because their deeds are evil. If you want evidence, look at the character of those who commit suicide, and then draw conclusions for yourselves.

destroy the lice at once. The owner thanked him for the article, and poured it along the back and tail of the horse and cow, according to direction. They soon showed signs of weakness, and lay down; one survived six hours, and the other about twelve—to the astonishment and grief of the owner and his friend.

Two cot bedsteads standing in a room where the ends touched each other, occupied by two individuals who did not use tobacco, but were filthy other ways, and both troubled (as is frequently the case) with fleas and bed-bugs, to some extent. One of them left, and another supplied his place, who used tobacco in various ways, so that his very *flesh* smelt of it. Soon after, the first complained that his new friend had brought more bugs and fleas; but he denied it, and said he was never troubled with such customers. An examination took place, which proved the new comer to be correct, as there were no fleas or bugs found in his bed; for they had all left, and taken up lodgings with his accuser, on account of the disagreeable odor emitted from his body.

A parent applied tobacco to the head of his son, in order to destroy the inhabitants of that region. The tobacco made the child sick, and stopped the regular secretions for a time, which marked his nails and teeth; the latter marks he will carry through life, as represented by drawings in my work on teeth.

Sheep have had it used on them for destroying ticks; it marked that portion of the wool formed during the time the secretions were interrupted. The marks could be seen with a magnifying glass, and by taking hold of each end of the fibres, they would first break where the marks were.

An individual residing in the city of New York, who trains and speculates in dogs for a livelihood, informed me that he thought one of his most valuable dogs did not appear very well, and concluded he would give him an emetic. Consequently, he soaked a cigar in order to obtain the juice for the above purpose; but before the dog had the dose on his stomach one minute he was dead, which greatly surprised his master.

Mind is dependent on living organic matter; therefore whatever will affect the physical powers and strength of the body, will produce a corresponding effect on the exercise of the intellect and *moral powers* of the mind.

If we are convinced of the facts as stated, and are *willing* to act in accordance with the evidence, we shall be compelled to admit that tobacco weakens the intellect and moral faculties, as it weakens

the body. Nearly all admit that the bodily or animal propensities ought to be in subjection to the *reasoning* faculties; but if the animal feelings are allowed to govern, then shall we be sliding down hill, although unconscious until we get to the bottom; and if we wish to get up again, the higher organs must govern those below stairs.

To those who use tobacco, and are anxious and willing to give it up, provided it could be done with safety (as they say), under such circumstances duty will depend on the state and condition of the body.

First. To those who have just commenced, I would say, Give it up at once, and put yourselves under a pledge or vow never to taste it again while you live, or have a moral character to *soil*.

Second. Those who have used it for a number of years, and are in the prime of life, ought to think awhile, and consult the best and safest way to get out of the snare.

Third. For persons in advanced age, who have used tobacco for a long time, it would not always be duty to give it up at once, but only lessen the quantity gradually, as they can bear it; but in so doing, be careful that in forsaking one error, you do not embrace another.

For a change, some will quit snuffing and take to smoking; others will quit smoking and take to chewing; while many will discontinue the use of tobacco altogether, but will take to drinking *rum*, not having *moral force* enough to subdue and *live down* the effects of an acquired and perverted appetite. If this course is pursued, it will be "like jumping out of the frying-pan into the fire."

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EFFECTS OF TOBACCO.

FROM A LECTURE BY CHARLES CLAY, M. D., OF
MANCHESTER, ENGLAND.

NOTWITHSTANDING all the objections that have been raised to its use, there are four methods which the lovers of tobacco indulge in, for the sake of deriving from it those advantages which they imagine it to possess, and which it is necessary we should consider as connected with the health of individuals and the general welfare of society; these are smoking, snuffing, chewing, and plugging the nostrils; each of them have their advocates, and also their enemies.

Smoking is the most general custom, and, though highly injurious, and unattended with those benefits its votaries, in their enthusiasm, have bestowed upon it, yet, in comparison with chewing, snuffing, and plugging, is the least injurious. Men of the highest literary attainments have indulged their fancies by praising smoking. The great Lord Bacon, although he was obliged to coincide with the views of his master, James I., yet in secret he eulogized the practice of smoking. I have heard of ministers of religion who could not arrange their ideas for sermons unless assisted by smoking, but I am inclined to believe that if the conversion of sinners into saints must depend on the fumes of tobacco, the progress of their efforts would be very slow. Persons inclined to indulge in smoking will allow any trifling excuse to stand against the best-grounded arguments. The half consent of a medical man, who has not the hardihood to deny indulgences to his patient—the recommendation of any dirty, habituated old smoker—the slightest pain in the head, or eructation of wind from the stomach, for which there are a thousand better remedies—*all* or *any* of these is sufficient for him to adopt the dirty practice in defiance of the best proofs to the contrary; once led away, one bad habit leads to another, until he or she becomes a disgrace to society. A very eccentric surgeon that resided near Manchester (now dead), was

applied to by a dirty old woman, who smelled strongly of gin, and had a short black pipe in her mouth, to be cured of the wind on her stomach; and, while telling her tale, she drew forth a tin box, worn very bright, and took an enormous pinch of snuff; the medical gentleman was so disgusted with his applicant, that he told her, disease arising from one bad habit might possibly be cured by knocking the cause on the head, but, in her case, there was no chance, her bad habits were so numerous, the only thing he thought she could do, was to adopt another to complete the list, which was chewing. Some individuals assert that it would be injurious to aged and habituated smokers to give up the custom suddenly, but what is the fact—thousands of aged persons, long accustomed to smoking, are annually sent to our prisons and houses of correction, where they are suddenly deprived of tobacco, and yet no bad consequences ensue; they return to society, after their period of confinement, improved in appearance, and evidently better in health. It is ridiculous to suppose any great good can be produced by smoking. The fumes of the tobacco are merely sucked into the mouth, and then puffed out again, either the same way, or through the nostrils. During the act of smoking, the passage from the mouth to the stomach is as effectually shut against the smoke as it possibly can be, so that it really is not taken into the stomach, to exert the powers so wonderful as have been attributed to it. “If this is the case,” *the smoker says*, “it can do no harm, if it does no good;” but I will endeavor to explain how it does effect the injury complained of. It must be allowed by all that man ought to breathe the purest atmosphere he can, *otherwise* he is liable to very many and serious diseases. Now, we all know that, in large towns, the atmosphere is sufficiently bad without making it worse by tobacco smoke; and who ever went into the smoking room of an inn or common pot-house, and could say such an atmosphere was fit to breathe? Now the smoker is constantly in a depreciated atmosphere. The saliva secreted from the glands within the mouth, which ought to be pure and unadulterated, for the purpose of mixing with the food for the formation of nourishment of the body, is, on the contrary, impregnated strongly with tobacco, and secreted in too large quantities, and, by this means, drains the system of its strength, brings on that very indigestion it is recommended to cure, and thus silently, slowly, but no less certainly, undermines the strongest constitution, and produces that sallow, emaciated, and cadaverous class of society, exemplified by smokers and chewers of

tobacco. Smokers obtain the same effects from this herb as from spirituous liquors—it is, in fact, an inebriating object, and, if drunkenness be a sin, smokers are really and truly drunkards; but neither startling facts nor the weapons of ridicule will ever suppress it entirely—even the summary method of the Sultan Amurath failed. It can, however, be justified only as a very temporary gratification, while its attendant evils are great and numerous; polluting the breath, blackening the teeth, wasting the saliva, injuring the complexion, producing indigestion, emaciation, and a host of nervous disorders; the stomach becomes much deranged; the scene is often wound up by death from apoplexy. So fashionable is this habit become, that boys of very tender years are often met in the street with cigars, aping the absurdities of those of older growth.

Smoking has not the recommendation of sociality, such indulgers being very taciturn, and scarcely ever speak but in monosyllables, so that a reporter need not hurry himself in setting down their speeches. If the smoker has a very fertile imagination, he may, as the influence of the narcotic begins to work, people the curling smoke above his head with objects of imagination, till his senses are sealed in forgetfulness. Such is the species of intoxication connected with smoking, and the only pleasure it gives, and for which much pain must follow.*

Snuffing is a degree worse than smoking; in addition to the adulterations already mentioned in the manufacture of tobacco, it requires more for the formation of snuff. It is made to undergo various adulterations; salt is sometimes mixed with it to increase its weight, and to give it pungency; and, for this purpose, urine is also added to it, in order to obtain the muriate of ammonia which it contains. Glass, finely powdered, is also employed, to give a greater degree of acrimony, and to stimulate the lining membrane of the nostrils, and this, by some manufacturers, is very extensively used, particularly in the Welsh snuffs. It is very much upon the leaf being gathered in its proper state, and upon the fermentation which it undergoes, that the real quality of the snuff depends, however much it may be heightened by various aromatics; thus, the supe-

* In the expressive language of our friend Hocking, "If I had a monkey that smoked, I would give him notice to quit."

If ever the inhabitants petition for the law to be rigidly enforced for manufacturers to consume their own smoke, I hope they will include smokers of tobacco, that nuisance being far more disagreeable and more injurious than that of factory chimneys. Yes, only let them consume their own smoke, and we shall be soon quit of the nuisance.

riority of the Macauba snuff, of Martinique, depends upon the great attention paid to the fermentation which the tobacco undergoes; it is slightly moistened, during the process, with the best sugar-cane juice. Other varieties are assisted, during fermentation, by molasses, or by sugar. There is the greatest nicety required in watching the operation, and it is amply repaid by the high prices which a good article obtains in the European market; but almost every country appears to have its favorite powder, and that which in one place is very highly estimated, is totally disregarded in another: those individuals who are habituated to the use of any one, seldom derive any gratification from the substitution of another.

The very form of the nose is a powerful argument against the use of snuff; had that organ been intended to receive the dirty additions crammed unnecessarily into it, *it* would have had a different form, to prevent the trouble of snuffing, thrusting, and cramming; on the contrary, the openings of the nose are downward, for the purpose of getting rid of materials noxious to the system, and *not* to take fresh ones in. As I said by the smoker, if you can find a person with the apertures of the nose turned upward, I shall admit it probable such a person's conformation favored the habit of snuffing.

Snuffing is a more sociable custom. It has been considered on the Continent as an easy and gentlemanly mode of introducing yourself to a stranger. It is said to be of the deepest importance to the physician, as it gives him an opportunity, when asked a question which requires momentary thought, to deliberate during the operation of taking a pinch of snuff, and, on this account, it is said to have been recommended by Dr. Ratchiffe to his brethren. It fills up some vacant time, and somebody has been at the trouble of calculating how many hours in the week, how many days in the year, are occupied by inveterate snuff-takers, which cannot be less than a certain number of seconds employed at each pinch. It is useful in keeping those who are inclined to fall asleep awake. By some it is said to increase the mental powers, by others to diminish them. The great Frederick, of Prussia, had his pockets lined with tin to retain it, and they were generally filled. Those whose intellects are disordered, covet it with the most remarkable anxiety, and are said to form a personal attachment to a donor.* The objections raised to it are, that it is an unseemly habit, that the linen becomes soiled by it, and the person almost impregnated with the

* Snuff-takers form a large portion of the inmates of all lunatic asylums.

odor; even the apartments are rendered unclean, and the atmosphere is loaded with particles which are deleterious to some persons. It vitiates the organs of smell, it taints the breath, affects the sight, the respiration, and the digestion. If the stimulus be too severe it dilates the lining membrane of the nostril, or it stimulates it into too great a secretion, and it is a habit which "grows by what it feeds upon."

The following is the calculation of the Earl of Stanhope: every professed, inveterate, and incurable snuff-taker, at a moderate computation, takes one pinch every ten minutes. Every pinch, with the agreeable ceremony of blowing and wiping the nose, and other incidental circumstances, consumes a minute and a half. One minute and a half out of every ten, allowing sixteen hours to a snuff-taker's day (*and he always begins early and keeps it up late*), amounts to two hours and twenty-four minutes out of every day, or one day out of ten. One day out of ten amounts to thirty-six and a half days in the year—hence, if we suppose the practice of forty years' standing, two entire years of the snuff-taker's life will be dedicated to tickling his nose, and two more in blowing it. The expense of snuff, boxes, and extra handkerchiefs, is another consideration, showing as great an encroachment on his means as his time. The time and money lost to society, if properly applied, would furnish a fund sufficient to defray the national debt.

It is generally allowed the disease which terminated the life of Napoleon Bonaparte was brought on by excessive snuffing. The strong inspirations required to take snuff have caused small particles of the noxious poison to get on to the stomach, and thus produce results similar to that of Santeuil, whose death I have already mentioned.

Snuff keeps many of the females (engaged in lace-making, in the neighborhood of Newport Pagnell) under the continued influence of hysteria, and gives them an early stamp of age; at thirty a snuff-taker looks as if forty years old. It is the sole cause of a variety of dyspepsia, of which I have witnessed a vast number of instances, the symptoms being a painful sensation of weight at the stomach; of a hard, undigested substance pressing, as it were, upon a tender part of the stomach, which sensation is for the time relieved by taking food; remarkable depression of spirits, every thing seen through a medium of gloom and distrust, and tremors of the nerves. Upon an accidental interruption of snuff-taking for a few days, the pains do not occur; upon a return to snuff, the pains return.

The celebrated Leigh Hunt, speaking of snuffing, says, "It is an odd custom; if we were to come suddenly upon it in a foreign country, it would make us split with laughing. A grave gentleman takes a little casket out of his pocket, puts a finger and thumb in, brings away a pinch of a sort of powder, and then, with the most serious air possible, as if he was doing one of the most important actions of his life, proceeds to thrust, and keeps thrusting it, at his nose! after which he shakes his head, or his waistcoat, or his nose, or all three, in the style of a man who has done his duty, and satisfied the most serious claims of his well-being.

"Some take it by fits and starts, and get over the thing quickly; these are epigrammatic snuff-takers, who come to the point as fast as possible, and to whom pungency is every thing. Such use a sharp, severe snuff—a sort of essence of pin-points; others are all urbanity, and polished demeanor, and offer the box around them as much out of dignity as benevolence. Some take it irritably, others bashfully, others in a manner as dry as the snuff itself, generally with an economy; others with a luxuriance of gesture and a lavishness of supply that announces a moister article, and sheds its superfluous honors over neck-cloth and coat. Dr. Johnson's was of this kind, which he took out of his waistcoat pocket, in lieu of a box. There is yet another species of snuffer, who performs the operation in a style of potent and elaborate preparation, ending with a sudden activity; small, round, and fat people sometimes attempt it. He first puts his head on one side, then stretches forth his arm, with pinch in hand—then brings round his hand, as a snuff-taking elephant might his trunk—and finally shakes snuff, head, and nose together, in a sudden vehemence of convulsion. His eyebrows all the while are lifted up, as if to make the more room for the onset; and, when he has ended, he draws himself back to his perpendicular, and generally proclaims the victory he has won over the insipidity of the previous moment, by a sniff and a great 'bah!'"

Seriously, however, snuffing has a strong tendency to encourage a determination of blood to the head, giving rise to apoplexy, and, on this account, plethoric subjects should never indulge in such habits. If it were attended with no other inconvenience, the black loathsome discharge from the nose, the inflamed appearance of the nose, the soiled clothes and linen, the expense, and generally disagreeable feature of a snuffer, ought to deter every person from it. Let it never be forgotten, too, that you are constantly in danger of exciting inflammation in the membranes of the nose, situated

within the sixteenth part of an inch of the brain itself, where the slightest inflammatory action often proves fatal.

Chewing.—If smoking and snuffing are attended with such disagreeable consequences, what must we consider chewing? This is the worst manner for the health in which tobacco can be used. The waste of saliva is greater than in smoking, and the derangements of the digestive organs proportionably severe. All confirmed chewers are more or less subject to long-standing diseases of the stomach and liver. Plugging the nostrils with a roll of pigtail tobacco is practiced in some parts; fortunately this consummation of filthiness is not very prevalent in this country; but from the rapid strides already observed in smoking, chewing, and snuffing, plugging may yet become as fashionable as it is now for mere children, and not less foolish, but more matured beings, to exhibit their cigar, pipe, snuff-box, or quid. Those who have an inordinate liking for tobacco, cannot be otherwise than drunkards, and *vice versa*. Tobacco is closely allied to intoxicating liquors, and its votaries are neither more nor less than a species of drunkards; at least it produces the same effects of inebriety, and is attended by the same fearful results. Can any man justify himself in the use of this poisonous plant, in opposition to the evidence I have brought before you? Will he still willingly be a slave to his pipe, box, and quid? To what does this evidence amount? *That tobacco is an active poison*—that its use is productive of the most distressing and fatal diseases. As a medicine, little to be relied on, and very seldom necessary. That, when used, its effects are so very uncertain and dangerous, that none but medical men should superintend its use. Thus, you will perceive, it would be as reasonable to make our well-known and most deadly poisons articles of common use, as to persevere in the abuse of a plant, which, when understood, is equally dangerous with any of them.

It is true the injury on the constitution of man, by the common mode of using it, is not perceived at once; and it is difficult to persuade the lovers of tobacco of its bad tendency. But a series of complicated chronic disorders creep on him apace, his life becomes insupportable, and he sinks into a premature grave; *but to tell* his friends around his last resting-place, that tobacco had hastened the catastrophe, they would tell you of some hard iron constitution who had smoked all his life, and lived to a very old age. The very individual quoted, however, is often a walking mass of chronic disease, a magazine of filth, and a fac-simile of human wretchedness,

a sallow, cadaverous countenance, with scarce a ray of hope imprinted upon it. It is our duty to do all we can to prevent *man* from rushing to his own destruction—the laws of God require it from every one of us. Then not only shun tobacco yourselves, but instill that doctrine into others; for rest assured, should the constitution hold up even against this evil, the *drinking system*, to which it leads, is sure to put the last nail into the coffin, and, while life exists, look at the ruinous effects of tobacco in producing idleness, and neglect of every sacred duty imposed upon us, by the benumbing, groveling, stupid, slavish condition in which it places us, in having us in the high road in search of further excitements, such as ardent spirits, and the like.

Governor Sullivan declares “that tobacco excites a demand for a strongly stimulating beverage, to supply the waste of secretions caused by its use; thus the walking tobacco consumer begins with smoking, but *dies a sot!*”

Dr. Rush states “that smoking and chewing render simple fluids insipid to the taste, hence the anxiety to have the strongest spirits: by this alone, brandy, which formerly was rarely used, is now the most common drink of cigar smokers.” But we are told many smoke, chew, and snuff, without being sots. There may be many, but when compared to the number of consumers, they are but very few. I dare assert, if a person tells me that he has smoked, snuffed, or chewed long, *that, if he is not a drinker, he soon will be*, and I dare be bound by that assertion; in ninety-five cases out of one hundred, *I am right*.

I have already proved this disgusting custom a source of great mortality. I cannot conceive the public would be so mad in its use, *only under the impression* that it is not dangerous, and may be of use for some fancied or real disease they may labor under. So *insidious* are the effects of this plant, and so *insensible* have the community been to its dangers, that very few have regarded the use of tobacco as the cause of swelling the bills of mortality. But, however startling, *it is nevertheless true*, that vast multitudes are carried to the grave every year by it alone!

Dr. Salmon says, “More people have died of apoplexy, since the use of snuff, in one year, than have died of that disease in a hundred years before.” Almost every one I have known die of late of that dreadful disease, were inveterate snuffers. What, then, ought to be done? What can be done? What must be done? If this manufactured narcotic be of recent origin; if it be ruinous to the

health, constitution, and intellect; if it occasions an amazing waste of property, a multitude of deaths, and eternal ruin to many precious souls; if it do no good, and there be no apology for using it, which will bear examination; then something ought to be done, and it ought to be done immediately. And only one thing need be done. And that can be done, and it ought to be done. It is this: tobacco can be abandoned. And if moral influence enough can be enlisted, it will be abandoned. Half measures, that is, moderate use of tobacco and snuff, would be as useless in banishing the evil, as moderate drinking that of the drinking system. No! nothing but an entire disuse of the dirty weed, rendered still more filthy by the cupidity and avarice of our own species, can ever annihilate this wretched incubus that hangs on society to such an extent.

These habits are useless.—To the consumer no benefit results; but much disease, sorrow, and pain. It is perfectly contradictory to the manners of a gentleman—renders every person pitifully ludicrous—entails upon man bad habits, and is only taken, *not for its usefulness or good qualities*, but because a vitiated appetite has taken a fancy to it; and, lastly, it is called fashionable.

They are expensive habits.—A very common smoker will expend £2 or £3 per annum. An average of three or four cigars a day, amounts to £10 or £12 per annum. And all this goes for smoke and spittle. Men preach and talk of benevolence and charity, but expend more in smoking and snuffing every year than in either of the foregoing praiseworthy objects.

They are growing habits.—I have said enough to convince any man that, the habit once begun, there is no limit to its extent, but with the termination of life.

It is an offensive habit.—Its vulgarity will never be denied by any reflecting person; but is it not offensive to the eye and nose to see school-boys, and almost every dirty boy in the street, sport a cigar? Poor, silly, ignorant things, they know not what they do, *they ape those equally foolish of maturer growth*. Ladies that are in a position to speak their minds, cordially hate it. Every good housekeeper dislikes to have her rooms impregnated with the smell of tobacco smoke. The indelicate accompaniments of smoking and chewing are an annoyance to every house. If smokers and chewers only knew the extent of their offensiveness to others, they would soon give up the practice. If they heard half the remarks made on them behind their backs, by even those whom they sup-

pose their best friends, they would surely decline that which makes them so offensive, and so very ridiculous.

It is an injurious habit, as I have shown you in almost every sentence I have uttered on the subject; and, lastly, it is the *preface to*, and the *excuse for* drinking. It therefore becomes every parent not only to prevent a child from practicing it, but to *avoid it himself*. How many youths can I recollect in my time that thought themselves men, when they could master a cigar and drink a glass of brandy and water! But where are they now? Peopling the graveyard! or victims to consumptions, liver complaints, apoplexies, and such like diseases; and not a few within the walls of a lunatic hospital.

And now, my friends, let me appeal to your common sense, and earnestly solicit you to assist in suppressing these filthy habits, these pernicious, these injurious customs! so basely grounded, so foolishly received, so grossly mistaken in the right use thereof. Tobacco and opium were never intended by the great Architect of the universe for that general application to which man, in his proneness to adopt even the most injurious customs, has applied them. Mark the evils they have entailed upon society, the miserable and extensive catalogue of diseases, added to a list already sufficiently numerous and distressing without such additions. But it is a well-admitted fact that nearly three fourths of the diseases afflicting man are his own producing, by attaching himself to what are called luxuries, which he would be far happier and far healthier without. I have no fear of opening the eyes of any reflective person to the evils I have shown up. Those willfully ignorant I have no hope of, till dear-bought experience convinces to the contrary, when it is too late to retract, when their shattered constitution is past repairing, when their senses are too blunted to receive outward impressions, when the *whole man* is so stupefied with the fumes, and saturated with the juices of these filthy narcotic substances, disgusting to himself and doubly so to every one about him. The only place likely for a residence is within the walls of a lunatic hospital, until the grave opens wide its jaws to receive its premature and diseased victim. Have you any regard to your character? Are you sensible to being made the butt and ridicule of your best friends? Are you desirous of not being considered as a nuisance to society? Have you no wish to correct a depraved and unnatural appetite for what is vitally injuring you? Will you be a slave to fashionable fooleries? Will you, knowingly, spend so much of your earnings

in so filthy an enjoyment, to the injury of your families? Are you willing to be under the stigma of being an idle waster of your time and goods? Will you indulge in a habit that grows by what it feeds upon, becoming more expensive every day? Will you be set down as a vulgar and offensive character—as a dirty person? Will you, determinedly, vitally injure your health? Will you be led tamely into the high-road of all drunkards? Will you destroy your prospects of happiness in this world, and annihilate every means that should insure your happiness hereafter? If such are your wishes—if these are the characteristics you wish to be known by—if this is the regiment of evils you wish to be identified with—*go on*. Fumigate yourselves—saturate yourselves—stuff your nostrils—be, as you deserve to be, the scorn, the ridicule, the contempt and utter abhorrence of every sensible person. But if you see their evils, and are wishful to set a good example, *refrain at once*. Have some regard for the young, who are so apt to ape your habits. Reform yourselves before you preach to others. Grumble not at taxation, while you voluntarily impose so extensive a tax upon yourselves. You plead for the assistance of your *neighbors*, when sickness overtakes you, without ever considering how much sickness *you might avoid*, by avoiding those things that are a positive injury to you. Begin your reform *now*—let no inducement stand in your way to a good work—make a bold, a determined stand, when you will secure not only a happier, but a healthier life; live to a hale old age, and die respected.

Hoping the observations I have made may be productive of some good among you, I shall now leave the matter in your hands, trusting you will reap every advantage, by at once avoiding the means which is entailing such an amount of misery by the way of disease, and by the filthiness of the habit render yourselves nuisances to society, and despised by your best friends. Persons who thus live in a constant violation of nature's laws, cannot expect to be a healthy community. They have entailed miseries upon themselves that are hard to be borne, but which may be easily remedied by rejecting the bad customs of society, and retaining the good; by depriving themselves of foolish and injurious luxuries, and thereby enabling them better to assist those who are deprived of even the most common necessities of life. Let it never be told we are as a population almost starving for food, while we are spending, *aye*, millions, on such filthy, useless articles as snuff, tobacco, and opium.

ON THE DISEASES RESULTING FROM THE IMMODERATE USE OF TOBACCO.

BY THOMAS LACOCK, M. D.

THE consequences of smoking tobacco are manifested in the buccal and pharyngeal mucous membrane, and their diverticula; on the stomach, the lungs, and the heart, and on the brain and nervous system. With regard to these consequences, it may be generally stated here that they vary according to the quantity of the tobacco smoked, and according to the pathological conditions and peculiarities of the individual himself. Some persons will smoke a very large quantity before certain symptoms arise, while others experience these with a very small quantity. The amount consumed by habitual smokers varies from half an ounce to twelve ounces per week. The usual quantity is from two to three ounces.

• Inveterate cigar smokers will consume from four to five dozen per week of the lighter kinds of cigars, as Manillas, Bengal cheroots, etc.

The first and simplest morbid result of excessive smoking is an inflammatory condition of the mucous membrane of the lip and tongue, and this sometimes ends in the separation of the epithelium. Then the tonsils and pharynx suffer, the mucous membrane becoming dry and congested. If the throat be examined it will be observed to be slightly swollen, with congested veins meandering over the surface, and here and there a streak of mucus. The inflammatory action also extends upward into the posterior nares, and the smoker feels from time to time a discharge of mucus from the upper part of the pharynx, in consequence of the secretion from the mucous membrane of the nares collecting within them. The irritation will also pass to the conjunctiva (and I am inclined to think from the nares, and not by the direct application of smoke to the eye), and the results are, heat, slight redness, lachrymation, and a peculiar spasmodic action of the orbicularis muscle of the eye experienced, together with an intolerance of light, on awaking from sleep in the morning.

I think the frontal sinuses do not escape, for I find that one of the symptoms very constantly experienced after excessive smoking is a heavy, dull ache precisely in the region of these sinuses. But, descending along the alimentary canal, we come to the stomach, and here we find the results to be, in extreme cases, the symptoms of gastritis. There is pain and tenderness on pressure of the epigastrium, anorexia, nausea on taking food, and constant sensation of sickness and desire to expectorate.

The action of the heart and lungs is impaired by the influence of the narcotic on the nervous system, but a morbid state of the larynx, trachea, and lungs, results from the direct action of the smoke. The voice is observed to be rendered hoarser, and with a deeper tone; sometimes a short cough results; and in one case that came under my notice, ulceration of the cartilages of the larynx was, I felt quite certain, a consequence of excessive use of tobacco. This individual had originally contracted the habit of smoking when a sailor, and it had become so inveterate that he literally was never without a pipe in his mouth, except when eating or sleeping. If he awoke in the night he lighted his pipe; the moment he finished a meal he did the same. It is only in extreme cases like this that the inference can be fairly made as to the morbid results of the habit, because there are so many other causes of disease to be estimated at the same time. This particular instance has, however, during my experience, been corroborated by others of a like kind, and I have come to the conclusion that inflammation and ulceration of the larynx in men are almost exclusively peculiar to the slaves of excessive tobacco smoking.

Hæmoptoe is another morbid condition distinctly traceable to this habit. The patient experiences a slight tickling low down in the pharynx or trachea, and hawks up rather than coughs up a dark, grumous-looking blood. I have not been able to ascertain whence this comes. I have known it to flow out of the patient's mouth during the night, or to be effused shortly after laying down. It is a symptom worthy especial notice, however, because it gives great alarm, and may be readily mistaken for pulmonary hæmoptysis, or an expectoration of blood.

The action of tobacco smoking on the heart, so far as I have observed, is depressing. The individual who, from some peculiarity of constitution, feels it in this organ rather than elsewhere, usually complains of a peculiar uneasy sensation about the left nipple—a distressing feeling—not amounting to faintness, but allied to it. In

such an example no morbid sound can be detected, but the action of the heart is observed to be feeble and slightly irregular in rhythm; yet not always so in the same person. An uneasy feeling is also experienced in or beneath the pectoral muscles, but oftener, I think, on the right side than on the left.

On the brain the action of tobacco smoking is sedative. It appears to diminish the rapidity of cerebral action and check the flow of ideas through the mind. This, I think, is a certain result; and it is in consequence of this action that smoking is so habitual with studious men, or men of contemplative minds. The phrases, "a quiet pipe," or a "comfortable cigar," are significant of this sedative action. It differs, however, in kind, from that of opium or henbane, because, as a *general* rule, tobacco does not dispose to sleep; it may in *individual* instances, but not generally with tobacco smokers. On the contrary, it rather excites to watchfulness, and in this respect is allied to green tea in its action; or, if not to wakefulness, to dreams, which leave no impression on the memory. When this effect has passed off, there appears to be a greater susceptibility in the nervous centres to impressions, as indicated by trembling of the hands, and irritability of temper.

There are a few facts which I would now state generally, and which appear as secondary results of smoking. Constipation and hæmorrhoids are often experienced by inveterate smokers. Acne of the face I have observed to be excited and kept up by the habit, and to disappear with the discontinuance of the latter. Blackness of the teeth and gum-boils are not uncommon results. There is also a sallow paleness of the complexion, an irresoluteness of disposition, a want of life and energy, to be observed occasionally in inveterate smokers, who are content with smoking—that is to say, who do not drink. I have suspected also that it has induced pulmonary phthisis. It is thought that the sexual energy is impaired by the habit, but on this point I have no facts to detail.—*London Medical Gazette.*

PHYSIOLOGICAL EFFECTS OF TOBACCO.

BY DR. WM. A. ALCOTT.

MR. EDITOR—Facts, which you know are stubborn things, show most conclusively, that the use of tobacco among us is on the increase—not in the form of snuff, perhaps, not even in that of the cud, but in the shape of cigars. From one end of the commonwealth to the other—temperance or no temperance—it is, as it were, one mighty *puff—puff—puff*.

Some time since, I was invited to address the members of a Lyceum, not a thousand miles from Boston. As no subject was assigned me, I wrote to the proper officers to know what they desired. They hesitated—indeed, they never did inform me officially. Privately, however, I was informed by two or three leading men of the Lyceum, that they wished me to hit off tobacco. Our boys, said they, all over town, as soon as they are knee high, begin to smoke. And we greatly fear they shelter themselves under the authority of some of our great men, who also smoke. I gave the lecture, and hit off tobacco as well as I could. But judge of my surprise when I found I had been hitting off the Rev. Dr. —, who was the oldest and principal offender. The good doctor apologized—said he had been advised many years before, by medical men, to use tobacco for the “stomach’s sake, and other infirmities,” and had unawares become enslaved to it. I trust he has since broken off; but the boys and young men have not in every instance done so.

No young man who uses tobacco, in any shape whatever, but especially no one who hangs often at the extremity of a roll of it, even though his feet should touch *terra firma*, is or can be safe. He is apt to be thirsty. And *water* never satisfies. More than this—he is apt to dislike it. And then, to crown the whole, stronger drinks are very generally found in the same neighborhood with the tobacco—to be sold cheap.

Tobacco smoking feeds the love of strong drink in two ways. First, by creating that morbid thirst already spoken of; secondly, by impairing the appetite for food, and indirectly encouraging him who uses it, to seek for that strength which food should give him, in the use of extra stimulus. Tobacco, as some say, dries up the

blood. It may, however, with nearly as much of physiological correctness, be said to *fire* the blood. It certainly affects it. Not a gill of the three gallons circulating within us—no, not a spoonful—but is even poisoned by it. Who does not know that tobacco contains a most deadly poison—a poison so deadly that two or three drops of it will kill, instantaneously, almost any small animal? But he who uses tobacco, especially in the way of smoking, diffuses this poison over his whole system.

The lungs essentially consist of hollow vesicles, or air-bladders, so numerous that whatever we inhale affects a surface as large, at the least, as the surface of the whole body. Now, no man *smokes* tobacco without *inhaling* tobacco. What is *tobacco smoke* but *volatilized tobacco*? Smoke is not a *nothing*, it is a *something*. The smoke of wood consists of the dust of wood—or wood volatilized. So of the smoke of every thing else, not excepting tobacco.

Why then are not the hollow air-cells, or the lungs, as black as the walls of any other chimney? Tobacco, in the form of smoke, thus constantly thrown upon white walls, or the hollows of white bladders, would soon blacken them; why, I say again, are not the hollow-cavities of the human system, upon which tobacco smoke is wont to fall, blackened in the same way? Simply and only because millions of absorbents are found in their internal surfaces which take up the fine tobacco deposited by the smoke, and carry it into the circulation. This subject is made more intelligible, by means of diagrams, in my public lectures on the lungs and their diseases, especially colds, asthmas, and consumption.

Here, then, we have it! Tobacco in the blood; irritating—heating—poisoning it! Tobacco in the blood; and this poisoned pailful of blood performing the round of the circulation every three or four minutes!!! Is it to be wondered at that tobacco smokers are thirsty? Or that, water being insipid, they fly to the use of drinks *stronger* than water?

Let the friends of temperance—temperance men above all the rest—beware of tobacco in every form. It is one source, most undoubtedly, of the deadly stream that flows through our land. Nor will the friends of the good cause cease to be pained, and chagrined and mortified every now and then, to find the swift destroying flood sweep away the quay they have built, till they dry up this mighty but accursed tributary.—*Massachusetts (Worcester) Cataract.*

TESTIMONY OF JOHN QUINCY ADAMS.

"In my early youth I was addicted to the use of tobacco in two of its mysteries—smoking and chewing. I was warned by a medical friend of the pernicious operation of this habit upon the stomach and the nerves; and the advice of the physician was fortified by the results of my own experience. More than thirty years have passed away since I deliberately renounced the use of tobacco in all its forms; and although the resolution was not carried into execution without a struggle of vitiated nature, I never yielded to its impulses; and in the space of three or four months of self-denial, they lost their stimulating power, and I have never since felt it as a privation.

"I have often wished that every individual of the human race afflicted with this artificial passion, could prevail upon himself to try but for three months the experiment which I have made! sure that it would turn every acre of tobacco-land into a wheat-field, and add five years of longevity to the average of human life."—*Letter of John Quincy Adams to Rev. Dr. Cox.*

TOBACCO IN LITERARY INSTITUTIONS.

THE use of the abominable weed in the literary institutions of our country is very common. We clip the following regulation from a catalogue issued by the Flushing Institute, Long Island, near New York, a school of high repute. We are glad to see any thing that even *looks* toward the tobacco reform.

"Though many men of the highest respectability are addicted to either 'smoking' or 'chewing,' or both, it is believed that few, *very few*, have ever formed the habit by commencing the practice after the *maturity of their reason*.

"It is also believed that few men desire their sons to become the consumers of tobacco, in any form whatever. Youth, therefore, who deem either of these practices an accomplishment, should bring with them to the school a *written permission* from their parents. They must also pledge themselves to use the privilege only under certain restrictions. A violation of the pledge will at

any time be deemed a sufficient cause for leave to withdraw. The restrictions are offensive to those *only* who would smoke for the mere purpose of 'showing off.'

"Though the use of tobacco in this institution has not in *every* case been unconditionally forbidden, it is confidently believed that of all the students who have come and gone, there cannot be found one who formed the habit of 'using the weed' during his membership."

We trust that other schools will, ere long, follow the example of the above Institute; or, rather, we trust that many will, ere long, require their pupils *to do away with tobacco altogether*. There need be no fear of losing pupils. Not one parent in a thousand, however much he may use the weed himself, would wish to have a son follow his example. Teachers, remember this.—*Water-Cure Journal*.

TOBACCO-USING MINISTERS.

AMONG a series of resolutions recently passed in an annual conference in the state of New York, we find the following:

"*Resolved*, That we recommend that the ministers of this Annual Conference refrain from the use of tobacco in all its forms; especially in the house of worship."

By "tobacco in all its forms," we suppose is meant chewing, smoking, and snuffing. But can it be possible that a minister, whose duty it is to recommend purity, and whose example should be cleanliness, can need conference resolutions to dissuade him from a practice so filthy and disgusting? And do they even carry their inconsistency into the "house of worship?" So it seems! But just think of it! There sits the man of God in the pulpit smoking his cigar, and the beautiful curls of wreathing incense are ascending up before the altar and filling the house with the delightful odor, while he is carelessly turning over the leaves of his hymn book. Then he takes out his curiously wrought snuff-box, and, after the scientific rap on its cover, he opens it, extracts a noble pinch, puts the box again in his pocket, and snuffs away with a gusto not to be mistaken. This is done while he is listening to the devout praises led by the choir. He then offers a prayer, in which he is particular to repeat, "Holiness becometh thine house, O Lord, forever;" but, finding some difficulty in his articulation, he is obliged to stop

and relieve himself of his obstruction to speech, by emitting a delicate fluid from his mouth, which finely saturates the pulpit carpet. And finally, before rising to commence his discourse, he is obliged to take out the "*old soldier*," as the sailors call a quid of tobacco, and throw it into a corner; after which he names this most expressive text, from Job, "Who can bring a clean thing out of an unclean?" The sermon, of course, is excellent, and while the last hymn of praise is ascending to heaven, the good man fills his well-colored pipe, and, after the "benediction," with a friction match which he always has ready, he lights it up, takes it in his mouth, and puffs his way home.

We draw this picture not so much from what we suppose actually takes place in connection with a single service, as from what the "*resolution*," would imply—"Tobacco, used in all its forms, especially in the house of worship." We hope, therefore, that those who sat for our picture will not find fault with the likeness, even though they may not think it is very flattering.—*Hon. Horace Mann*

TESTIMONY OF E. C. DELAVAN, ESQ.

"I HAVE some slight personal knowledge of the effects of this poisonous and disgusting weed. When about twelve years old, on seeing gentlemen use tobacco, I was anxious to become a gentleman too, and that as speedily as possible. So I purchased a yard of what was called the *pigtail*, and commenced chewing it, as I walked, or rather strutted, through the streets of Albany. I had not walked over a mile before I became so deadly sick that I crept under a shed, where I remained several hours, before I could regain strength sufficient to return home. I made a subsequent attempt to become a gentleman on cigars, but was equally unsuccessful.

"I look upon the use of tobacco, in health, exactly in the same light, in a moral point of view, as I do the use of alcoholic poisons. And I have no more doubt that even what is called the moderate use of tobacco shortens life, than I have that the moderate use of rum shortens life."—*Delavan's Letter to Rev. Mr. Lane.*

APPENDIX No. II.

ORIGINAL COMMUNICATIONS FURNISHED FOR THIS WORK.

From Eliphalet Nott, D. D., LL. D., President of Union College.

I AM happy to hear that you are about to publish a work on the deleterious effects of tobacco. I have had some experience myself of its ill effects, having suffered from it more than thirty years. I was, while a boy, induced to adopt the use of this vile narcotic, because it was considered manly to do so. Immediate and distressing sickness was the consequence of my first attempt. Custom gradually diminished this unpleasant effect, and the use ultimately became habitual and pleasurable. But I was thereafter occasionally visited with nausea, faintness, heart-burn, and a feeling of lassitude, especially in the morning, which continued until I could obtain the supposed restorative from my tobacco-box. Years past on before I became convinced that the ills I suffered were to a great extent owing to tobacco. But I did so become convinced, and resolutely determined to discontinue its use.

This caused me no inconsiderable suffering for a time, but this suffering gradually disappeared, and with its disappearance my previous ailments also disappeared; since which I have enjoyed greatly improved health, till attacked by inflammatory rheumatism, about a year and half since. From this attack, though seventy-five years old, I am now, through the blessing of God, by the application of cold water, and a vegetable diet, gradually recovering my health, and to some extent my activity.

Such has been my own experience; and I may add that, since being connected with Union College, I have observed the deleterious effects of tobacco on others, especially on the youth intrusted

to my care. The lives of some, and the health of many, have been destroyed by persisting, in despite of counsels, in the use of this poisonous narcotic, which, next to intoxicating liquors, is in my opinion more destructive to the health of the youth in our country, than any other agent.

ELIPHALET NOTT.

From L. N. Fowler.

IN compliance with your request for a word of testimony from me on the subject of tobacco, I will gladly throw in my influence against the noxious weed.

Having traveled extensively through all parts of the country for a number of years, I have come in contact with every variety of society and diversity of circumstances, and have observed the peculiar effect of different habits on the minds of persons who have indulged in them; and also what classes of persons are the most addicted to various kinds of habits. I find that the most wicked and abandoned individuals in the community use tobacco; that boys and young men who are becoming more and more depraved—that low, dissolute, profane men, idlers engaged in amusements alone, night-walkers, theatre-goers, gamblers, and licentious persons, are almost invariably chewers or smokers.

Believing, as I do, that tobacco produces a disastrous effect on the digestive powers and nervous system, tending to weaken the one and derange the other; that the blood is rendered thereby impure and disturbed in circulation; that the secretions become irregular and shamefully wasted, by the constant loss of saliva from the mouth, I have taken particular pains to inquire of those who use tobacco the individual effect that it produces. The almost universal reply is, that it not only does them no good, but a positive injury. Very rarely, if ever, am I told that the use of tobacco promotes health, or removes any bodily obstructions or ailments. Tobacco is truly an enemy to the constitution. In this instance man loves his enemies more than his friends. Many commence its use for medicinal purposes, and then continue it as a habit.

Its effects vary in different constitutions. Those persons who

have a predominance of the nervous temperament, with a limited degree of the vital, are the greatest sufferers. Where there is but little nervous power or susceptibility, with a great development of the animal forces, the effects are slower and less perceptible. In attempting to induce persons to reform from its use, I find that it is vastly more difficult for them to do so, than to give up the use of ardent spirits. Many have delirium tremens from the use of tobacco; the minds of others are so much unbalanced, that they become entirely unfit for business, till they have smoked three or four cigars. An editor once told me that he ~~was~~ utterly unable to hold his pen steady, or to think out his editorials, until he had smoked several cigars, and the more he smoked, the more was his habit confirmed.

Many ministers *used* to be in the same predicament in writing their sermons. Nervous women who use it are very apt to scold. Tobacco benumbs the affections and moral feelings, and renders love a mere passion. I knew a man, who married a fine woman. At first he was very affectionate, his moral feelings were active, and for a time he studied for the ministry; but imbibing the habits of chewing and smoking, he became less pious and affectionate to his wife, and by the time that he smoked thirty cigars per day, he could swear like a pirate, and abuse his wife shamefully. Not being able to endure his treatment any longer, she commenced drinking to drown her trouble, and soon put an end to her life.

I attended a meeting one Sabbath evening in the town of Augusta, Georgia, when a fine looking young man waited on a young lady up the aisle to a seat that was in a contiguous pew to the one in which I sat. Soon he began to spit out into the aisle. For the novelty of the thing, I looked at my watch, and found that he spit ten times in two minutes. He continued it at that rate for nearly an hour, which made so large a puddle that the ladies were obliged to raise their dresses and step over, as they would step over the mud in the streets, with no very pleasant countenances. I remained to see them through their difficulty. This young man joined in singing the closing hymn like a Christian. Thought I, perhaps he *is* one, then looking down on the floor, said I, *no*, he *cannot* be. At the close of the meeting, the crowd were prevented from passing out as fast as they otherwise could, in consequence of

the dirty puddle they had to ford. He became impatient waiting for his Dulcinia, and spoke out, quite abruptly, "Where the devil is she?" Then I thought, no sign either of a *Christian* or *gallant*.

A friend of mine, Dr. W., I am sorry to say, uses tobacco. I have repeatedly urged him to discontinue the habit. He broke off once, but says that he had all the symptoms of delirium tremens in its worst form; he therefore commenced chewing again as a remedy. This shows that he had not sufficient perseverance, or that his system craved and depended on an artificial stimulant, induced by a long and excessive habit.

A young man who was studying for the ministry, had formed the habit of smoking. He had a conscience and moral susceptibility, and felt that he was doing wrong to pervert his appetite; but the sequel proved that he had not sufficient firmness in the good cause. He left off smoking, but went to chewing, then left off chewing and commenced drinking, then took to smoking again, and then to chewing, and in this way he went through all the different changes for several years, till he has finally blunted his moral sense, and now does them all.

A man from Newburyport came into my office one day, who said that he was perfectly wretched, and took no pleasure in life. He blamed his father, mother, and his God, that he had been brought into existence, or had seen the light of day. I asked him what his habits were. Do you drink? No. Do you chew tobacco? Some. Do you smoke? Oh, yes, I do that to excess. He made an estimate, and told me that he smoked many thousand cigars in a year, and chewed eighteen pence worth of tobacco per week. He ought to have been miserable, to have tampered thus with his vitality and nervous energies. This habit is very expensive, so much so that many consume almost their entire earnings, thus disabling them from enjoying other privileges and advantages which they otherwise would have had both the disposition and means to secure, as the following story will illustrate.

A young man from Fitchburg wished to purchase books on Physiology and Health, but said that he was not really able. I inquired what his salary was per year. He said one hundred and fifty dollars, with his board. I asked him about his habits—if he chewed? No. Do you smoke? Yes. How much? He said that formerly

he smoked fourteen cigars a day, at about two cents for each, which made over eighty dollars per year, but that his health was so much deranged that he had reduced his allowance to seven. I told him this cost him forty dollars per year, which he expended not only uselessly, but in those things that tended to shorten his life as well as to destroy his usefulness while he lived. Scores of facts of a similar nature could be adduced, that have come under my own observation, if space would allow. All prove that tobacco is a filthy and pernicious weed in every form in which it is used. I would like to say a word on a custom in vogue among the ladies in a certain section of the country, not many thousand miles from New York. I refer to the chewing and eating of snuff; but will not particularize now. I feel that the *most* good can be done in this cause, by holding forth motives to induce persons who have *never formed* these habits to abstain wholly, totally from them; for it is almost an impossibility, comparatively speaking, to reform many of those who have once overcome the nausea and loathing which all healthy stomachs at first evince when tobacco is introduced into them.

L. N. FOWLER.

From Rev. Henry Ward Beecher.

TOBACCO must be regarded as one of the wonders of the world. In its own nature it can be regarded only as disgusting. Those barriers which are thrown around poisonous vegetables here exist in a marked degree. Its juice is poisonous; its flavor pungent and disagreeable; its effects upon the untempered, unsubdued nerves, are horrible. Sea-sickness is bad enough, but its sinkings and retchings are a mere mercy to the prostration induced by the first trial of tobacco.

How should such a noxious and disagreeable substance have become a universal luxury? Besides these effects at the beginning, the use of the weed is accompanied with continuous discomfort to all about the user. There are certain offices of the body which delicacy endeavors to shade and conceal. All the processes of secretion and excretion are disagreeable when made familiar.

Yet all users of tobacco exalt these functions—and snuffing and blowing, or smoking and reeking, or chewing and spitting, form important parts of daily duty to the exceeding annoyance of all that are pure.

The pernicious practice of using tobacco is the result of imitation or of vanity, and usually of both together. It is regarded as a prerogative of manhood; and boys, hardly past whipping, aspire to virility and independence, by aping the vices of their elders. But, once begun, the practice thrives and becomes inveterate on account of the effect of tobacco as a stimulant. Its history and phenomena form but a section in the long chapter of super-stimulation of the cerebral mass and of the nervous expansions.

While no single effort will change the public mind in this matter, yet no well-directed labor will fail to do a part of the work of reformation. I am most happy in being permitted to express a strong desire that your treatise may be widely beneficial.

H. W. BEECHER.

From Hon. Horace Greeley.

GENTLEMEN—You ask me for a statement of what I know and think respecting tobacco. I have had a good deal of experience on this subject; in fact, I once smoked nearly an inch of cigar myself. It served me right, and I have never since had any inclination to outrage human nature and insult decency in any such way. I was then some six years old, and naturally aspiring to the accomplishments of manhood and gentility; but the lesson I then received will suffice for my whole life, though it should be spun out to the length of Methusela's. I have since endured my share of the fumigations and kindred abominations of tobacco, but I have inflicted none.

I wish some budding Elia, not a slave to narcotic sensualism, would favor us with an essay on "The Natural Affinities of Tobacco with Blackguardism." The materials for it are abundant, and you have but to open your eyes (or nostrils) in any city promenade (glorious Boston excepted), in any village bar-room, to find

yourself confronted by them. Is Broadway sunny yet airy, with the atmosphere genial and inviting, so that fair maidens (and eke observing bachelors) throng the two-shilling side-walk, glad to enjoy and not unwilling to be admired? Hither (as Satan into Paradise, but not half so gentlemanly) hies the host of tobacco-smoking loafers, to puff their detested fumes into the faces and eyes of abhorring purity and loveliness, to spatter the walk, and often soil the costly and delicate dresses of the promenaders with their vile expectorations. And, even should the smokers forbear to pollute the outraged but patiently enduring flag-stones with their foul saliva, the chewers will not be far behind (as the Revelator saw "death on the pale horse, and hell following after"), industriously polluting the fair face of earth, as their precursors have poisoned the sweet breath of heaven. How long, oh! how long, must all this be suffered?

I have intimated that the tobacco-consumer is—not indeed necessarily and inevitably, but naturally and usually—a blackguard; that chewing or smoking obviously tends to blackguardism. Can any man doubt it? Let him ride with uncorrupted senses in the stage or omnibus, which the chewer insists on defiling with the liquid product of his incessant labors, seeming unconscious of its utter offensiveness; and which even the smoker, especially if partly or wholly drunk, will also insist on transforming into a miniature Tophet by his exhalations, defying alike the express rule of the coach and the sufferers' urgent remonstrances, if he can only say, "Why, there's no *lady* here." [No *ladies* is *his* expression, but the plea is execrable enough, though expressed grammatically.] Go into a public gathering, where a speaker of delicate lungs, and an invincible repulsion to tobacco, is trying to discuss some important topic so that a thousand men can hear and understand him, yet whereinto ten or twenty smokers have introduced themselves, a long-nine projecting horizontally from beneath the nose of each, a fire at one end and a fool at the other, and mark how the puff, puffing gradually transforms the atmosphere (none too pure at best) into that of some foul and pestilential cavern, choking the utterance of the speaker, and distracting (by annoyance) the attention of the hearers, until the argument is arrested or its effect utterly destroyed. If he who will selfishly, recklessly, impudently, inflict so

much discomfort and annoyance on many, in order that he may enjoy in a particular place an indulgence which could as well be enjoyed where no one else would be affected by it, be not a blackguard, who *can* be? What could indicate bad breeding and a bad heart, if such conduct does not? "Brethren!" said Parson Strong, of Hartford, preaching a Connecticut election sermon, in high party times, some fifty years ago, "it has been charged that I have said every democrat is a horse-thief: I never did. What I *did* say was only that every horse-thief is a democrat, and *that* I can prove." So I do not say that every smoker or chewer is necessarily a blackguard, however steep the proclivity that way; but show me a genuine blackguard—one of the b'hoys, and no mistake—who is not a lover of tobacco in some shape, and I will agree to find you two white blackbirds.

HORACE GREELEY.

From Dr. Jennings.

FRIEND SHEW—You do well to nib your pen for a conflict with tobacco, that prince of narcotic poisons. For although you may not succeed in portraying the evils resulting from the use of this vile weed in more glowing colors than some of the many able writers, who have given their best thoughts to the subject, have done, yet your forcible, straightforward, common sense method of treating the matter, will take hold of many minds that might not otherwise be reached, and secure their emancipation from one of the most loathsome, debasing, and invincible habits to which poor sunken humanity ever succumbed.

You ask for my opinion of the effects of tobacco on the human system. They are "evil, and only evil, and that continually." No one claims for tobacco that it is nutritious, or capable of being wrought into living organs. On the contrary, it is generally admitted to be a poison, and a most subtle and potent one. It acts directly upon the nerves, both of sensation and motion, and rapidly exhausts excitability.

The kind of morbid derangement or disease, which tobacco will

cause to be developed in those who make an habitual use of it, will depend upon the condition of their physical system; those organs or parts of the body which are reduced to the lowest point of vital activity, will be the first to fall into disorder under its depressing influence. As you will present from your own storehouse of observation, and that of others, many facts, in proof of the deleterious effects of tobacco upon the human system, I need give you but one.

In the early part of my medical practice, when I supposed that "nature could be helped" by feeding her with poisonous substances, I had a very severe and protracted case of bilious colic to manage. After a fruitless use of a variety of means for exciting the action of the bowels, I decided on trying an infusion of the common paper tobacco by injection, well advised at the time that great caution was necessary, inasmuch as lives had been sacrificed by this mode of exhibiting this substance.

A small quantity only of a weak infusion was used, but no sooner had it reached the bowels than the patient, who was a strong, muscular man, trembled like an aspen leaf in every fibre, and turned ghastly pale; a cold, clammy sweat exuded from the surface of the body, and he seemed for awhile just at the point of death.

But you will not find so much difficulty in convincing the slaves to tobacco, that the service of this tyrannical master is deleterious to body, soul, and spirit, and degrading to humanity, as you will in urging them up to a point of successful effort for final and complete emancipation from such service.

With the hope that it may encourage some poor bondman to stand up manfully and assert and maintain his freedom from so loathsome a bondage, I will give you a short account of the method of escape from tobacco servitude, by one who wore the galling yoke for more than twenty years.

In February, 1829—a memorable epoch in my eventful life—meeting on a special occasion, with four or five particular friends, all of us inveterate tobacco users, it was proposed that we should break off from the baneful practice, and a unanimous resolution was passed instantly to that effect. But my friends, fearing to take too bold a leap at once, limited the positive interdiction of their use of the delectable weed, and, as a tyro in such matters might have predicted, after their respective limitations had expired, treated

their good resolutions. Bitter experience, as well as observation, had taught me that it was in vain to think of escaping from the fangs of so potent an enemy by any species of gradualism, and that for me at least it must be "neck, or no joint." Accordingly, my resolution was taken to use no more tobacco while the world should stand, and my purpose was *fixed* to sustain that resolution, come life or death. The consequent breaking was by no means a light or comfortable one, but was much shorter and easier than it would have been but for the settled, immutable decree that my depraved sensibility and tobacco had forever parted.

A few weeks after the total abstinence principle had been put in force against the use of tobacco, in a sleeping revery I seized my large-bowled and elegant Chinese pipe—my favorite mode of indulging in the nicotinic pleasures—and soon enveloped myself in a beautiful dense cloud of curling and enrapturing tobacco fumes, which soon awakened the slumbering sensibilities, and set them to reveling in all the wild ecstatic pleasures of olden times, when they were actually under the inspiring influence of the maddening narcotic, and with a zest, too, that was heightened by weeks of painful abstinence: when suddenly the conviction flashed over my mind that I had broken my resolution, returned the dog to his vomit again, strengthened the power of my relentless enemy over me, and augmented the doleful prospect of a perpetual bondage. The agony of spirit which these reflections excited, threw my whole frame into violent agitation, drenched me with sweat, and broke my slumber. And oh! how sweet and consoling was the assurance that restored consciousness gave to my tortured mind, that it was all "nothing but a dream!"

Thanks to a kind and guardian Providence, ever ready to help those who help themselves, the yoke of bondage is broken, and the oppressed is free from the tyrannic and abject servitude of tobacco. For years I have felt no more appetency for this noxious plant, than I have for pigweed or skunk-cabbage.

Grateful for such signal deliverance, I would fain do all in my power to aid others, who are under the dominion of a strong tobacco habit, to escape therefrom. Reader, if such is unfortunately your condition, permit me to commend to your special attention and unflinching application, the only rational and trustworthy rem-

edy for so formidable an evil. Adopt for your motto, IMMEDIATE EMANCIPATION AND TOTAL ABOLITION. And not only discard at once and forever all use of tobacco, but admit of no substitute of chamomile flowers, or other substance, with a view to alleviate the horrors, or sense of depression and wretchedness which will be very likely to ensue upon a disuse of the narcotic stimulus. "The hotter the battle, the sooner over." There is no danger to be apprehended from suddenly arresting the pernicious habit, no matter how long it may have been indulged, or how strong it may have waxed, nor yet how feeble the constitutional powers. The depressed or uncomfortable feelings which ordinarily flow from an abandonment of protracted or excessive stimulation, result directly from a wise and provisional movement, designed and tending to restore damaged machinery to soundness and vigor. The less, therefore, that it is interfered with, or embarrassed by counteracting influences, the sooner and more perfectly will the good work be accomplished.

But, my dear friend Shew, I am transcending the limits which your publishers prescribed for me, and will therefore close by wishing you abundant success in your reformatory efforts.

Yours truly,

I. JENNINGS.

From O. S. Fowler.

FRIEND SHEW—You ask my opinion of the effects of tobacco. My answer is this :

Of all the descriptions of its evil effects, none have come up to the actual evils themselves. I have seen many disgusting pictures of the filthiness, especially, of chewing; but none compare at all with the reality. Street-sweeping and sink-cleaning are incomparably less filthy than tobacco-eating and smoking. The dog re-eating his vomit is disgusting, but tobacco-spittle is far more so. What a concentration of vileness is a tobacco-puddle! How utterly nauseating and loathsome if RETAKEN into the mouth! Then was it not quite as vile when EXPELLED therefrom? Talk about a decent man chewing tobacco! What can be more body-defiling and soul-polluting?

I have seen glowing descriptions of its injurious effects upon digestion, by impairing the salivary glands ; yet no description equals the reality. By scarcely any other means can the stomach be more injured, or more permanently deranged. Healthy salivary glands are as necessary to good digestion as healthy eyes to good vision. Now, this powerful stimulant, this narcotic poison, brought in almost perpetual contact with these glands, both by chewing and smoking, must, in the very nature of things, disease them. That it does disease them, is evident from the very enormous quantity of saliva which it causes them to secrete. It literally WORKS THEM TO DEATH, and at the same time vitiates their products. And vitiated saliva must, in the very nature of things, impair digestion.

But if tobacco chewers could spit out, with their quids, all the effects of tobacco, less damage would be done. But these salivary glands are literally SOAKED, by the day and year—aye, lifetime—in tobacco-spittle, so that the tobacco-infused saliva they manufacture during mastication, of course, finds its way to the stomach, deranging that organ, and through it the whole system.

It is claimed that tobacco prevents toothache. How ? If at all, it is by DEADENING the nerves ; that is, by benumbing their sensory or life principle. For my part, let me suffer the painful state of any part of my system, rather than have that part deadened. Tobacco-eating certainly does increase the decay of the teeth, wears them rapidly away, and keeps the mouth in a perpetually fevered, filthy, and most disgusting condition. Of all things, the MOUTH should be clean. Of all other things, the tobacco eaters' mouths are the very essence of defilement !

The breath, especially, of tobacco smokers shows that their systems have become steeped in this narcotic poison. The lungs are one of those doors through which the system casts out noxious matter. Thus the system abhors alcohol, and accordingly ejects it by every breath of those who drink. From what source does the breath of smokers derive its fœtid tobacco infection, or rather load ? FROM THE SYSTEM ; not from the mouth merely. Tobacco smoke held in the mouth, and throat, and nostrils, infuses the spittle—which smoking renders abundant—hence the copious spitting ; and which, passing gradually into the stomach, and throughout the system, is expelled through the lungs. Since, therefore, it so abounds

in the body as thus to impregnate the breath, it must make immense havoc of health, life, and mentality. Think of it: the entire system saturated with tobacco-essence! That even the brain is loaded with it, is evident by its opiate effects upon the feelings and intellect.

But these influences, and many like influences, are but drops in the bucket, compared with the MORAL effects of tobacco-eating and smoking. If it were merely a filthy practice, or even detrimental to digestion and circulation, and stopped there, I would remain silent, because only a minor evil. But, by a law of things, whatever depraves or vitiates the body, thereby depraves the NERVOUS system, and through it the BRAIN, and thereby the MIND. To disease any part of the body, especially the nerves, is to disease the brain, and thereby to produce a SINFUL state of mind. Mental purity is compatible only with physical health. That alcoholic liquors deprave the mind, engender corrupt feelings, and sensualize and brutalize every moral principle of the soul, is not theory, but universal OBSERVATION AND EXPERIENCE, caused by that intimacy of relation existing between body and mind. All mental depravity consists in the abnormal, perverted exercise of our mental faculties. Such perversion is the natural consequence of the physiological disorder of the brain. And all physiological disease throughout the system disorders the brain and corrupts the mind. As alcohol engenders moral depravity, so tobacco produces moral corruption, by first disordering the physical system. Tell me a tobacco chewer is a virtuous man! I know better. He may not have broken the seventh commandment outright; but as "he that looketh on a woman to lust after her committeth adultery with her in his heart," so tobacco, in all its forms, causes that sinful, sensual tone or cast of the love-feeling, which constitutes the very essence of licentiousness. It vitiates combativeness, and accordingly tobacco eaters and smokers are universally irritable. How do they feel before they take their quids in the morning? Snappish to their wives, churlish to their children, and cross to every body and every thing. And this is true not only before breakfast, but throughout the entire day. Tobacco produces a perpetual souring of the temper; a cross-grained, ill-natured, repeling, or depraved state of combativeness. It equally vitiates appetite, by producing a craving, corrupt state

of both appetite and stomach. No man can have a healthy body, nor really enjoy food, who eats tobacco. It causes dyspepsia of body and dyspepsia of mind; that is, a diseased, gnawing, hankering, dissatisfied, craving state, of all the feelings, appetites, and passions.

The influence of tobacco upon amateness is powerful, and powerfully vitiating. No man can be virtuous as a companion who eats tobacco: for, although he may not violate the seventh commandment, yet the feverish state of the system which it produces necessarily causes a craving and lustful exercise of amateness. Just as alcoholic liquors cause such amatory cravings, and for the same reason. As alcoholic liquors and the grosser forms of sensuality are twin sisters, so tobacco-eating and devilry are both one; because the fierce passions of many tobacco chewers, as regards the other sex, are immensely increased by the fire kindled in their systems, and of course in their cerebellums, by tobacco excitement. Ye who would be pure in your love-instinct, cast this sensualizing fire from you. In fact, its perverting influence upon the entire mentality accords with the love-illustration just given. Mark the point! It CORRUPTS and depraves the body, and through it sensualizes and sinulizes all the faculties of our being; for moral depravity consists, not in the excessive exercise of our faculties, but merely in their PERVERTED action. The CONSTITUTIONAL effect of tobacco is to PERVERT and VITIATE the entire being, from the crown of the head to the sole of the foot, in all the ramifications of mind and functions of body.

The inquiry next turns upon the best mode of BREAKING OFF a practice thus constitutionally filthy, destructive to health, and debasing to morals. There is but one way, and that is, to resolve resolutely to QUIT AT ONCE AND FOREVER. To break off gradually, is only to tamper with the scorpion, and be stung more deeply thereby. Cut off the snake's HEAD! "But I can't," you reply. What! Can't stop, when you know that you are perpetrating such widespread destruction upon mind and body? Are you such a slave to a low-lived, disgusting passion, and can't give it up? Are you so pitifully weak, and own it at that? Then no more call yourself a man! Own it, aye, that your masculine energy is not sufficient to free you from your groveling passions. Own, that though you

know you are doing wrong, you can't stop! Then own up, and done with it, that you are a poor, weak THING; that your MANHOOD is emasculated, and your MORALS subjected. But you CAN break off. This one motive alone, if you will allow it its due consideration, will COMPEL you to stop—the ravages you are perpetrating upon your body and soul. You have a conscience, and you are bound, by the highest obligations of your being, to follow its dictates. And that conscience warns you never to put another quid or another cigar into your mouth, because you thereby do violence to so exalted—so God-created and GODLIKE—a being as yourself. Think you no more of yourselves, no more of your moral purity, here or hereafter, than to defile and debase yourselves thus! Rise at once, O sunken mortal, in the high-toned dignity of moral principles. Put the foot of moral determination upon the head of the serpent passion, and cast him out forever from you, and in a few days your triumph will be achieved. Do not break off in PART only, nor allow the lurking idea that if you can't do without it you can return to it, for such lurking will prevent the achievement of your object; but resolve, be the consequences what they may, to break off FOREVER; for the harder it is to break off the more you require to, because the more you crave it the greater the injury it has done and is doing you. BREAK off, and all the gold of California could not bless you as much as that single decision and practice. In a few days you will get habituated to do without it, and in a few weeks you will be a newly organized man—not in your physiology merely, but in your whole tone of feelings and cast of mind. A pure, virtuous, elevated, holy, aspiring state of mind will take the place of that corrupt, debased cast of your faculties which tobacco has produced, and your progress in all that is good or great will be ten-fold more rapid than it now is. By all the value you place upon yourself, then; by all the solemnity of the laws of your being; by all the authority of the direct command from God, not to do violence to body or mind; you are thereby imperatively COMMANDED to ABSTAIN, AT ONCE AND FOREVER, from this body-destroying, soul-vitiating narcotic, in all its forms.

From Dr. R. T. Trall.

It is difficult to find, among the thousand ways that human beings have worked out the problem of sensual depravity, a habit more intrinsically filthy and indecently disgusting than smoking, chewing, and snuffing this noxious weed. It has ever been the handmaid of intemperance, and ranks next to alcohol in its depraving influences on the mental and physical constitution of man. It seems to be a law of perverted appetency, that the more "foul, strange, and unnatural" the artificial excitant to which mankind resort, the more potent and fascinating is its spell, when once the organic sensibilities are subdued by it. The greater the resulting depravity, the stronger will the depraved appetite cleave unto the instrument of such depravity. If

"E'en from the body's purity, the mind
Receives a secret, sympathetic aid,"

so, conversely, it is as true that the body's impurity imparts to the mind a sympathetic depravation of its higher and nobler attributes. A man or woman thoroughly addicted to the use of tobacco, in any form, and cleanly in all his or her personal habits in other respects, I have never seen. How can a person keep his mouth and nose, intended by God to be the recipients only of pure food, pure water, and pure air, constantly *stenchified* with the acrid juice, pungent dust, or poisonous smoke of tobacco, without deeply contaminating the whole being?

To a lady or gentleman of refined taste, the indecency of the habit is a sufficient objection. The philanthropist ought to be restrained from its use by the viciousness of the example; and the physician is bound to condemn it from its injurious effects. That its general employment in civilized society is one of the most efficient instrumentalities at work in disordering the machinery and abridging the period of human life, every intelligent physiologist knows; and it is really surprising that so many medical practitioners, who are presumed to know something of the nature of poisons, as well as of the laws of life and health, commend its use to the community by their own examples.

But, in addition to its demoralizing tendency upon individuals and societies, the tobacco mania is the occasion of an immense waste of

wealth—the wealth of time and money. Millions of acres of land are worse than wasted in raising it; hundreds of thousands of laborers waste their strength and energies in manufacturing and retailing it; millions of consumers are continually wasting their pocket-money and health together, to keep up the abominable commerce. I have known more than one poor man who conceived himself too poor to afford his family a newspaper at three cents a week, yet who was able to smoke half a dozen cigars a day, at two or three cents each.

There is a still stronger motive than I have yet named, which ought to be brought to bear against this bane—the Christian principle. The Chinese, whose ideas of “the highest heaven” are synonymous with the absence of all feeling, may have a theory which in some degree excuses their habit of purchasing, by the use of opium, a foretaste of “the perfect state,” in temporary oblivion of sense. But how can Christians, whose “better world” contemplates the full development of both feeling and action, the perfect employment and full enjoyment of all the moral and intellectual powers, reconcile with their theory a practice which perverts and paralyzes both?

Like all excitants which combine stimulant, nervine, and narcotic properties, tobacco operates destructively far more rapidly upon the nervous and irritable temperaments than upon the torpid and phlegmatic. The easy, complacent, slow-thinking Dutchman will often smoke his pipe “from the rising of the sun to the going down of the same,” and live on to what is sometimes called old age; while the brain-laboring, excitable, and ever restless Yankee will become the subject of dyspepsia or consumption, and die before he has reached the middle period of life. Indeed, in all constitutions, the most deadly effects of the poison are seldom seen in any particular form of disease recognized by nosologists, as much as they are experienced in a gradual exhaustion of the nervous power. I have known many young and middle-aged men, afflicted with bronchial, pulmonary, liver, and nervous affections, repeatedly improve in general health, and also in respect to the local disease, on leaving off tobacco, and as repeatedly relapse on resuming the habit. A striking case in point:

A little more than a year ago a gentleman was boarding at my

establishment, where his wife was under treatment for a paralytic affection. Though in delicate health, he was able to attend to his regular daily business in one of the banks of this city. Observing him to be troubled with a dyspeptic cough, and ascertaining that he chewed tobacco constantly, besides smoking several cigars a day in the streets, I took repeated occasions to admonish him of the stern necessity of entire abstinence from "the weed," if he wished to keep consumption off many years. He allowed that the habit was somewhat injurious, but ridiculed the idea that death was among the possible consequences. A few months after this he was the subject of confirmed bronchitis; and being suddenly prostrated by an attack of hemorrhage from the lungs, he became alarmed, and left off tobacco entirely. For three or four months his health improved, and he gained considerable flesh, when, strange to say, he took to smoking cigars again. He is now in his grave. His history is that of scores, whose cases have come under my observation.

The professor of surgery in the Vermont Academy of Medicine, in 1831, was an inveterate snuff-taker; and the effect of the habit on his nerves and temper—rendering him peevish, irritable, and fickle—was obvious to every student. Many a time I have known him relate an amusing anecdote, in order to illustrate some point, calculated, and doubtless intended, to raise a laugh, when, presto, no sooner was the laugh over than he took umbrage, "even at the sound himself had made," and gave the class a sharp admonition for their levity and ill-manners! A few years subsequently he died in a lunatic asylum, from insanity, produced, as I believe, from snuffing tobacco.

It is difficult to make the confirmed "tobacconist" understand its mischievous effects upon his own organism by referring to his own feelings—they are perverted. After the habit is established, his sensibilities become so metamorphosed that he feels better with it than without it. To make him have a realizing sense of the truth, he must see its operation upon an unattainted organism. And if he will carefully observe the *modus operandi* of the first quid, or the first puff of a cigar, or the first pinch of snuff, upon any person whose senses have never been corrupted by narcotics, he will have a demonstration strong enough that tobacco properly ranks among the most virulent poisons.

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